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Original Communications.

COMPLETE NON-DESCENT OF THE COLON AND CAECUM IN THE ADULT.*

By W. C. BORDEN, M. D., Washington, D. C.

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Surgeon-in-Chief to George Washington University Hospital.

My reasons for presenting this subject to the Society are as follows: First, the erroneous, indefinite statements, or lack of statement in surgical text-books as to the frequency of non-descent of the colon and cæcum in the adult; second, its comparatively common occurrence in the few series of post-mortem observations carefully made to determine the anatomical disposition of the large intestines; third, the fact that I have observed this condition but once in my surgical experience and that it appears to have been very infrequently observed by other surgeons seems to indicate that the condition is not as common as would appear from the post-mortem observations above referred to; fourth, the fact that the ascending colon may be absent or markedly shortened and that the cæcum may occupy the site of the hepatic flexure is to be reckoned with in the differential diagnosis of diseases of the cæcum and appendix and in operations directed to these parts of the intestines.

While the colon and cæcum are usually normally developed and occupy a relatively constant place within the abdomen, still they are subject to abnormalities which are often wide departures from the normal, particularly as to position. Of these, one form is a congenital partial or complete non-descent of the cæcum, with accompanying shortened or absent ascending colon.

The post-mortem examinations made by Treves and Robinson indicate that complete absence of the ascending colon and non-descent of the cæcum is more common than is usually supposed while partial descent of the cæcum is comparatively frequent. These observers state that complete non-descent of the cæcum with consequent absence of the ascending colon was present in something less than 2 per cent. of their cases. Partial non-descent with an ascending colon under 6 inches in length occurred in approximately 7 per cent. These abnormalities were about twice as common in men as in women.

Robinson, in reporting upon 310 adults, found an abnormally high position of the cæcum in 8 per cent. In his statement of 130 cases reported (Mathews, *Med. Quart.*, 1896), he found two cases of complete non-descent, in which the cæcum lay directly under the liver. Ten other cases showed all degrees of partial descent. He writes, "The partially descended cæcum is not uncommon. It occurred in 7 per cent. of 128 cases. Most of these were almost completely descended." In his 130 cases he found the average length of the ascending colon to be 6 inches; the longest was 12 inches and the shortest 3 inches. In this connection it may be stated that Gray's Anatomy, 18th edition, 1910, page 1298, incorrectly quotes Robinson by stating in a note that Robinson found 8 per cent. of undescended cæcum and appendices while Robinson's original article states that he included all cases in which the ascending colon was abnormally short and the descent of the cæcum was not absolutely complete.

Treves (*Anat. of the Intestinal Canal, Brit. Med. Jour.*, 1885), in his report of 100 cases carefully dissected for abdominal research, met with two examples of undescended cæcum. Both were males, one 41 and the other 74

*Read at the meeting of the Southern Surgical and Gynecological Society, at Fort Monroe, Va., December, 1912.

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years of age. In both subjects the cæcum was placed at the right side immediately under the liver and just to the right of the gall bladder. It was quite horizontal, continued the axis of the transverse colon, and was included between the layers of the transverse mesocolon. The appendix came off from the posterior aspect of the cæcum. In both cases the remaining viscera were normal.

Robinson in reporting his cases says that in complete non-descent the ileum is apt to enter the cæcum from its underside and slightly towards its posterior surface, and the appendix generally lies under the liver just to the right of the gall bladder.

Fahrenholdt (*Boston Med. and Surg. Jour.*, 1894), reports that while operating on a cadaver, he found the cæcum in the right hypochondriac region in close proximity to the gall bladder. The appendix was normal and pointed downward. Both structures were held in place by the mesentery.

Hartmann (*Anomalie dans la situation du cæcum, Bul. Soc. Anat. de Paris*, 1887, L, XII), exhibited to the Society a specimen from a male 50 years of age in which the cæcum was situated directly beneath the liver to the right of the gall bladder. The small intestine was in the right flank in exactly the situation normally occupied by the ascending colon and was attached to the posterior wall by a rather short mesentery. It entered the cæcum perpendicularly and at a right angle. The colon ran directly to the left in the usual place.

Debert (*Ectopia of the cæcum, Bull. Soc. Anat. de Paris*, 1897, L, XXII-51), presented to the Society the abdomen of a cadaver in which the ileum crossed the upper part of the pelvis and with a curve of which the concavity was superior and internal, ascended vertically upward to empty into the posterior part of the cæcum. The cæcum was quite rudimentary and immediately continuous with the transverse colon without trace of an appendix. In the flank the ileum was in direct apposition with the abdominal walls to which it was affixed by the peritoneum which passed over it without forming a mesentery.

Lockwood (*Abnormalities of the cæcum colon with reference to development, Edinburgh*, 1884), reports two post-mortem examinations in which the cæcum was found in the

right hypochondriac region directly under the liver. One of these cases is especially interesting in that death followed intestinal obstruction and an unsuccessful operative attempt at right lumbar colotomy.

In spite of the statistics which indicate complete non-descent of the cæcum and absence of the ascending colon in upwards of 2 per cent. of subjects and the consequent diagnostic and operative difficulties which must often arise in cases having this abnormality, the references above given are all that the writer could find in a rather careful search of the literature in the Library of the Surgeon General of the Army. There are probably other reports which a very careful cross reference research would develop but the condition is one which has certainly been little discussed in medical writings. It is for this reason that the following case is reported:

M. H., male, age 26 years. Occupation, butcher. Admitted to the George Washington University Hospital, 3 P. M., December 6, 1911.

Family History: Negative.

Previous History: Negative as to abdominal trouble. Always had good appetite, no indigestion. Uses alcohol sparingly, smokes moderately. Usual weight, 165 pounds; no loss up to present illness.

Present Illness: On Tuesday, December 5, about 3 P. M., patient was seized with sharp colicky pains in the abdomen. There was some nausea and patient vomited a little. Felt a desire to go to stool and had a large loose movement. There was no chill and patient states that he had no fever. The pain interfered with his rest, and, becoming no better, a physician was called who pronounced the disease appendicitis and advised operation.

Condition on Admission: Patient well nourished, general appearance excellent but with a markedly anxious expression of countenance. Temperature 98.6°, pulse 80. Complains of occasional colicky pains in abdomen not localized but diffused and pains radiating into right lumbar region. Palpation shows increased tension on right side. Pressure tenderness not localized but generally diffused on right side from ribs downward, and more marked in right lumbar region. Leucocytosis of 18,000 with 72 per cent. of polymorphonuclears.

Diagnosis: Acute appendicitis; operation advised.

Operation December 7, 1911, 9:00 A. M. Muscle splitting incision. On opening peritoneum, only small intestines could be found. The incision was enlarged, the ileum located and found to pass with a curve, concavity inward and upward, to the usual site of the ileo-cæcal junction, and thence upward in the usual course of the ascending colon. It was quite closely approximated to the posterior abdominal wall by a short and broad mesentery, the peritoneum covering the anterior and lateral sides of the gut. In order to follow the intestine to the colon it was necessary to extend the incision nearly to the lower border of the ribs. The cæcum, which was very short, extended to the right, not downward, and but little beyond the ileo-cæcal junction. There was no ascending colon and the cæcum and the transverse colon into which it merged were in direct apposition with the liver. The ileum entered the large intestine at right angles from below and somewhat posteriorly. There was no intra-peritoneal evidence of the appendix. It was believed to be post-peritoneal. The peritoneum was incised and the short cæcum mobilized, when the appendix, 5 inches in length, markedly inflamed and with a gangrenous patch 2 centimeters in length at the tip, but not ruptured, was found coiled up behind the cæcum in the fossa to the right of the duodenum and over the kidney.

It was liberated and removed. With some difficulty a purse-string closure was made. No drainage was used. The patient made a stormy convalescence, largely due to a severe, acute dilatation of the stomach which developed soon after the operation but which yielded to repeated stomach washings and position treatment. He was discharged January 14, 1912, and has been in excellent health since.

This case presents the following interesting diagnostic, anatomical and surgical features:

The diagnostic signs were not marked. The tenderness was greatest at the back just below the ribs. Kidney or ureteral trouble was considered, but was negatived by the normal urine, the abdominal tension, the character of the onset with nausea and vomiting, and the leucocytosis which, combined with the general symptoms, indicated an appendiceal lesion. On account of the location of the pain it was

thought probable that the appendix was extra-peritoneal and behind the cæcum and colon, possibly with the tip as high up as the lower border of the liver, a condition present in four of the writer's cases. As a matter of fact it was posterior to the cæcum and just below the liver.

The anatomical condition was especially interesting. In this case, as in the cases reported by Robinson, Treves and others, there was no ascending colon. The cæcum was quite horizontal, continued the long axis of the colon, and the ileum entered the large intestine from its under and slightly toward its posterior surface. As in the post-mortem specimens reported by Hartmann and Debert, the small intestine occupied the position usually occupied by the ascending colon.

In Hartmann's specimen there was a short mesentery, and in Debert's the intestine was in direct apposition with the abdominal wall without a mesentery. The case reported herein appears to be about midway of the two, for, while the gut was not in direct apposition with the abdominal wall, it had a very short, broad attachment not corresponding to the usual mesentery.

The cause of congenital absence of the ascending colon is, manifestly, a persisting embryonic condition similar to that which normally exists at about the end of the sixth week of intra-uterine life. As the intestinal canal grows much more rapidly than does the embryonic body, the disproportionate growth causes the gut to first bend and then to be thrown into loops and convolutions.

The first most conspicuous loop appears at some distance below the stomach. Here the bowel assumes a U-shape with the closed end of the U projected toward the ventral abdominal wall. Between the limbs of the U runs the primitive superior mesenteric artery, and the vitelline duct is attached to the base of the U nearest the ventral wall. At a point on the lower limb of the U the bowel abruptly acquires increased calibre. This dilatation is the primitive cæcum and marks the division between the large and small intestine.

The intestine next proceeds to become twisted upon itself in a definite manner. This twist occurs about the superior mesenteric artery as an axis and is due apparently to inequality of growth in the parts of the U-

shaped loop above and below the cæcal enlargement. Above this enlargement the bowel grows rapidly to become the long and convoluted small intestine; below the growth the shorter large intestine is produced. Before this disproportionate growth occurs or the twist takes place, the cæcum lies near the umbilicus and with the rest of the large intestine is entirely to the left of the median line. With the occurrence of the twist the intestine rotates about the superior mesenteric artery, the cæcum mounts upward and over the small intestine, passes in front of the loop of the duodenum and assumes a position in the right hypochondriac region, the colon passing thence transversely across the abdomen ventral to the duodenum.

This stage of development exhibits the embryonic condition identical with that presented in the adult where the intestinal abnormality consists in absence of the ascending colon as in the case reported in this paper.

In the ordinary adult condition the colon grows longer and the cæcum descends to occupy its usual place in the right iliac fossa.

The points of surgical interest in cases of absence of the ascending colon are evident.

In appendiceal disease diagnosis may be more difficult and differentiation from disease of the gall bladder, the duodenum, the kidney and other adjacent structures more uncertain than is usual. In operation for appendicitis there may be difficulty at first in locating the cæcum and appendix, and naturally with this abnormality, as in the case reported by Lockwood, right colotomy or colostomy will be impossible.

1801 *California Street*, N. W.

STERILIZATION OF THE FEEBLE-MINDED. INSANE AND HABITUAL CRIMINALS.*

By H. W. DEW, M. D., Lynchburg, Va.

My chief purpose in presenting this paper to the Society is to arouse interest in a subject which, it seems to me, is of paramount importance in the preservation of the sanity of the after-coming generations, and, for that reason, ought especially to appeal to us as physicians.

The increase of the feeble-minded and insane in the United States in the past twenty

years has been appalling. In 1890, the census gave the number of feeble-minded in the country as 95,000. In 1911, just twenty-one years later, Frans, a very careful observer, placed it at 300,000, while most other observers placed the number 500,000. These statistics, you will observe, do not include the insane but the feeble-minded alone. The increase of insanity in the United States during the last fifty years has been about 300 per cent., which is far above the increase of the general population, which, according to the census reports, was only 138 per cent. during the same period.

In 1867, the proportion of insane to the general population in New York and the New England States was one to 1,600. At the present time, Dr. A. W. Ferris, ex-president of the New York Commission of Lunacy, says that in that State, there is one insane person to every 279 of the general population, and that insanity increased 104 per cent. in the last decade, while the general population increased only 47.6.

In the State of Virginia there were admitted to the hospitals for the insane, from 1870 to 1880, 1,263 insane persons; from 1880 to 1890, 2,805; from 1890 to 1900, 3,049; from 1900 to 1910, 7,591, which shows that there were six times as many insane committed to the hospitals from 1900 to 1910 as from 1870 to 1880. At the present time there are 4,600 insane confined in the five State institutions, as against 2,780 eleven years ago, which gives a total increase of 1820, or a yearly increase of 165. To show how fast insanity is increasing in the State of Virginia, the statistics for the year 1870 gave one insane person to every 1,746 of the general population; in 1880, one to every 1,332; in 1890, one to every 903; in 1900, one to every 667; and in 1910, one to every 493.

The statistics of the feeble-minded in the State have not been very carefully compiled, because most of them, not being dangerous, are kept at home and not reported, but Dr. Mastin, the efficient secretary of the Board of Charities and Correction, has estimated their number at 3,000, which is very conservative and, I believe, much below their true number. They are increasing almost as fast as the insane, the average increase of feeble-minded families being 3.6, while that of the normal sane family is only 2.6.

Dr. Goddard, at Vineland, N. J., who has

*Read before the South Piedmont Medical Society at Lynchburg, Va., November 16, 1911.

made a more elaborate study of the feeble-minded in this country than anyone else whom I know, says that 80 per cent. of the feeble-minded are due to heredity, and that he has never known a perfectly normal child to be born when both parents were feeble-minded. Out of 104 children born of feeble-minded parents, who fell under his observation, 100 were feeble-minded. All observers agree that feeble-mindedness and epilepsy are most certain to be transmitted by parents to their offspring than any other qualities, good or bad.

These feeble-minded women are notoriously immoral. One writer reported having found 15 in one almshouse in a neighboring State, who had given birth to illegitimate children in six weeks of each other. In speaking of them, he says that they are no more able to live according to the conventions of society than the cats and dogs in the street; they come to the almshouse to be delivered, and just as soon as they are on their feet, leave, only to return at the earliest possible moment for the same purpose, and this continues to the end of their child-bearing lives.

To show the cost to the State of allowing these women to be at large, the descendants of one feeble-minded woman, who lived in New York State, has been carefully traced; of 1,200 descendants of this woman, 1,000 were found to be either insane, feeble-minded, criminals, or prostitutes, and had cost the State one million three hundred thousand dollars. Virginia has many of her class, among them one who has had two illegitimate children by her own father. Now add to the insane and feeble-minded the habitual criminals, who are increasing *pari passu*, we will have a horde of parasites preying upon society, which, unless checked, will soon beggar her resources. One eminent though pessimistic psychiatrist recently became so much alarmed at the increase of the mental defectives that he said, unless something was done to stop it, the whole country would be insane in fifty years.

This, then, is the condition which confronts us; and there are, in my mind, only two remedies that can adequately deal with it, viz., the regulation of marriage, and the sterilization of the confirmed criminal and the mentally defective.

First, as to the regulation of marriage: the fundamental principle in treating disease, we

are taught as medical students, is to remove the cause; and as statistics show that 75 per cent. of all criminals, epileptics, feeble-minded and insane are due to heredity, it would seem particularly applicable in this case. Lydston, the eminent Chicago writer on social evils, puts it tritely when he says that society begins its contamination at the license window, for here the confirmed criminal, inebriate, epileptic, feeble-minded and insane receive the license of the law and the benediction of the church to go forth and propagate their kind.

It has been argued that the State has no right to prevent a person from marrying, because, in so doing, she deprives the individual of an inalienable right guaranteed him by the constitution; but she does abrogate those rights in the case of us physicians when she forces us to stand an examination before a board, appointed by her executive, to prove that we are fit persons before we can be entrusted with the lives of her citizens; and so with lawyers, dentists, engineers, and others. It seems to me that she has just as much right to say to the confirmed inebriate, criminal, epileptic, feeble-minded, and syphilitic, that they shall not marry and bring children into the world, who will be a charge on her resources and a contamination of her body politic.

In the last decade several States have enacted laws for the regulation of marriage, among them being Connecticut, Indiana, Illinois, and Washington. All these laws have the same essential principles, but differ in detail; Washington, for example, I am informed, charges each applicant \$25, the effect of which is that there are very few marriages in that State, for the contracting parties take the \$50, go into a bordering State, get married and return to Washington to live. The excessive charge, in this instance, defeats the object of the law.

The State of Indiana, in 1905, passed a law for the regulation of marriage, which, it seems to me, meets the requirements better than any I have seen, and which, with a few minor changes, I would like to see passed by our own legislature. The essential features of the law are that each person who desires a license to marry shall appear before the board of health of his county for examination, and shall obtain a written order from the board to the

clerk of the court before the license can be granted. No license can be granted to any person who is epileptic or of unsound mind, or who has been an inmate of the county almshouse or of a home for indigent persons in the last five years, nor to any person who has syphilis or any transmissible disease. The penalty is \$100 fine against any clerk who issues the license without written order of the board, and a like fine is imposed on anyone authorized to perform the service who does so without a license. I should like to have added to bill any person who is a confirmed criminal or who has been adjudged insane, unless they consent to submit to the operation to be discussed later; and, further, that each board of health should have upon it at least one physician. In case of the refusal of the board to grant the permit, the applicant should have the right to appeal to a central board, composed of one alienist, one internist, and one general practitioner, who should be selected by the State Medical Society, and appointed by the governor, and whose decision should be final. Such a bill, if passed by the legislature and rigidly enforced, would in a large measure decrease the number of mental defectives in the State, especially those of syphilitic and epileptic inheritance.

As it is a well-known fact that most feeble-minded persons and idiots do not take the trouble to get married, I would undoubtedly recommend sterilization as a prerequisite to liberty, pardon, or furlough for the feeble-minded in the almshouses, the insane in hospitals, and the habitual criminals in the penitentiary; and those who had been discharged as cured from the asylums, or those who had served their terms in the penitentiary. I would compel them to submit to the operation before they were allowed to marry.

There has been a great deal of sentimental opposition engendered in the public mind to this operation, due to the fact that it has been confounded with castration, a much more serious surgical procedure than vasectomy, the operation which I propose. It can be done in ten minutes by the average operator, is rendered painless by a few drops of cocaine, is devoid of danger, leaves no scar, consequently does not mutilate. It deprives the individual of no desire, capacity or pleasure in performing the sexual act; it leaves him all of his

virtues and deprives him of one of his vices; it takes from the individual no faculty, mental, moral or physical, except that of procreation. In the case of women the operation would be attended with a little more danger, in that the abdominal cavity would have to be opened, but in the hands of an operator of average ability, it ought not to be attended with a mortality of over 1 or 2 per cent.

As the general public has become better acquainted with the facts, sentiment has rapidly changed towards this operation, and legislatures that a few years ago characterized it as a brutal and unusual punishment, accept it today as a necessity. Dr. Lincecum, of Texas, who first proposed the operation of castration, was inundated by a wave of sentimental abuse, and was held up by both press and pulpit as an example of moral obliquity, although he introduced the measure as a substitute for capital punishment.

Dr. R. P. Bush, who, three years ago, introduced a bill in the New York legislature for the sterilization of criminals and feeble-minded, in a letter to me, says, that, "When I first introduced my bill, my associates regarded me with horror," but last year he had the satisfaction of seeing his bill enacted into law, with only eight adverse votes in the House, and not a single one in the Senate. I think the bill which he succeeded in getting passed is the best I have seen; and the suggestions which I shall offer you will be taken largely from that bill. While these are not in legal shape, and only tentative, I should like to see them embodied in a bill properly drawn and presented to our next legislature. The suggestions are:

First, That a statute be passed, making it legal to sterilize all habitual criminals in the penitentiary, all insane and feeble-minded in the asylums and almshouses, if, in the judgment of the board, it be deemed advisable.

Second, That a board be appointed by the governor, from names recommended to him by the Medical Society of the State, which board shall be known as the Board of Examiners of the Criminal, Insane, and Feeble-minded, and which shall be composed of three physicians of good standing in their respective communities, one of whom shall have had five or more years experience in the treatment of the insane or feeble-minded.

Third, That it shall be the duty of this board to examine all epileptics, insane and feeble-minded in the State institutions, and all criminals in the penitentiary; and if, after careful examination, they find an inmate who, in their judgment, would be likely to transmit to his, or her offspring, a tendency to insanity, epilepsy, crime, or feeble-mindedness, they shall appoint one of their number to do the necessary operation to render them sterile before they are allowed to leave the institution.

In order to safeguard the rights of the individual, it might be well to have some provision for an appeal or judicial review of the findings of the board in the case of criminals. In New York these operations have to be published for five days before their performance; it might be well to make the time a little longer, say ten days, to allow the prisoner, or his friends, to get any evidence they might wish to bring before the board. In the case of inmates of State asylums, I think the decision of the board should be final: these unfortunates have been committed to the care of the State because they are not capable of thinking or acting for themselves, and, having to feed, clothe and support them, the State should be allowed to do what she thinks best for them. Dr. Heryer says that 500 defectives have been sterilized in Indiana under the laws of that State, and that, after having the operation explained to them, 80 per cent. consented to it willingly, as they did not want children; the criminals, especially, said they were glad to be relieved of the responsibility and trouble of them. He also said he had gotten letters from a majority of those upon whom it had been done by force, thanking him for having done it.

We have arrived at a time when it is necessary either to sterilize or to segregate these people. If we attempt to segregate them, at even the present rate of increase of those sent to the asylums 165 per annum, which, by the way, is a small part of those in the State, it will cost the State annually at the rate of \$121 per head, which is about as low as we have ever gotten, or can ever expect to get the per capita at any institution—\$20,000 for maintenance and \$200,000 for buildings, making an aggregate of \$220,000, which is absolutely impossible with the present revenues of the State unless the present rate of taxation

be materially increased. If they were sterilized, many of the women who are confined at present in the alms-houses could be taken care of at home and engage in some useful occupation, for the principal weakness of many of them is along sexual lines.

It has been argued that if these women were sterilized and the fear of conception taken from them, it would make them worse morally than before; that fear has never, in my knowledge, restrained a feeble-minded woman, and from the statistics I do not think it ever will. But I am not arguing that the sterilization will make these people better, but that it will make them less a charge on society.

With a few notable exceptions, there has been a great deal of indifference in the State to this problem, which I hope and believe is due rather to ignorance of the facts than indifference. The legislators, when approached, dodge the issue, and say that the people are not ready for it; but they will do nothing to educate them. I firmly believe that just as soon as the people become acquainted with the conditions as they exist, and the danger to the future, they will force the necessary legislation. Every State which has agitated the question has gotten a bill passed, perhaps not the best bill, or one which the majority desired, but one that will do until a better can be passed.

If these or similar measures were passed, the mental defectives would be decreased 50 per cent. in two generations, and 75 per cent. in three. No one can claim that this class will ever be entirely eradicated; under the high nervous tension of the present civilization, many unable to keep the pace must drop out, but the 75 per cent. due to heredity can be materially lessened.

The statistics just presented show, then, that mental defectives are increasing five times as fast as the general population; something must be done, or they will bankrupt the State. Virginia already spends one-seventh of her revenue in taking care of her insane alone—(I have not been able to get the cost of the criminals and feeble-minded);—in five years it will be one-fifth. All of her institutions are crowded. There are at present one hundred epileptic women confined in her insane asylums, who ought to be moved for the good of both the patient and other inmates, because epileptic

seizures always excite the insane, but there are no funds available. Conditions are steadily growing worse, with no prospect of improvement under the present status.

Many of the more progressive States have already passed laws to regulate the increase of defectives. Among the number are Connecticut, Illinois, New Jersey, New York, Massachusetts and Indiana. None of the Southern States have fallen in line yet, though Arizona has a bill pending in her legislature which it is thought will pass. I should be very much pleased if Virginia were the first among her Southern sisters to obtain this just and necessary legislation; it is largely, in my opinion, a question of educating the people, and through the people the legislature, and I believe it is our duty as physicians to take upon ourselves this work of education.

I hope this Society, composed, as it is, of the most prominent physicians of this section of the State, will interest itself in this work. A great deal has been said about conserving our minerals and forests; is it not time for us to do something to conserve our citizens? Is it too much for us to ask that the State see to it that every child born within her borders has decent parentage? Is it an iridescent dream to believe that the next generation will see a healthier, happier, and saner race?

THE TREATMENT OF ABORTION.*

By VIRGINIUS W. HARRISON, A. M., M. D., Richmond, Va.

Associate Professor of Obstetrics, University College of Medicine.

In reviewing the subject of abortion, I find the advice given for its treatment by the various authors is not always the same; to state the correct procedure for the expert gynecologist, the average general practitioner, and what to teach students is a matter of importance. The treatment that would be indicated and at the same time safe in the hands of an expert might be fraught with great danger in the hands of inexperienced men.

The word abortion has come into disrepute among the laity on account of its criminal association; therefore, the word miscarriage is more frequently used in non-professional conversation.

In this paper I will use the term abortion as

defined by DeLee, Williams, McPherson and Taussig, viz.: "the expulsion of the non-viable product of conception." Edgar, in his 1913 text-book, confines abortion to the first twelve weeks of pregnancy.

During the early weeks of pregnancy we have to deal only with the ovum and its membranes and the decidua, no placenta being developed until the third month. McPherson states that 60.5 per cent of all abortions occur during this period.

In the first twelve weeks, then, we have a condition that nature is often able to handle unaided and will completely empty the uterus. McPherson denies this statement and says only 13.7 per cent are complete. I cannot find any other writer who confirms his opinion, but do find several who hold that they are much more frequently complete.

During the second period at which we must consider the contents of the uterus in abortion, we have in addition to the greatly enlarged ovum, and more highly developed membranes, etc., also the placenta with its intimate maternal attachment.

All treatment of abortion must have as its basis the knowledge of what is in the uterus, and what is the best method of removal.

The period of pregnancy having been determined, the expelled material having been examined, we can with a fair degree of certainty say if the abortion is complete or incomplete. If the abortion is complete, according to most authorities the treatment is *nil* or symptomatic; if the abortion is incomplete, the question is, must we leave the case to nature, or shall active measures be instituted. If active treatment is decided upon, the next thing to be decided is how far is the average general practitioner justified in performing the work.

To my mind, there are four indications or methods of treatment for incomplete abortion, depending upon the condition of the cervix, the contents of the uterus, the urgency of the symptoms, and by whom the treatment is to be carried out.

Indication and Method.—1. If the cervix is soft, dilated, and the blood flowing through it is not alarming, we can wait a while and leave the case to nature; we can pack the cervix and vagina with sterile gauze and again give nature a chance to complete the work she has already begun; or, if the cervix is insufficiently dilated,

*Read before the Tri-State Medical Society of the Carolinas and Virginia, at Norfolk, Va., February 19-21, 1913.

we can dilate the cervix and remove the retained contents with the gloved finger.

2. If the cervix is not much dilated, yet is accompanied by moderate hemorrhage, the best treatment will be to pack the vagina tightly with gauze until dilatation is sufficient, and then treat as suggested in the first method.

3. If the cervix is soft and dilatable, and haste is imperative, as for severe hemorrhage, or if nature has proven herself unable to complete the work after a fair trial, the cervix should be dilated with the gloved finger, the safest of all curets, and the finger should be carried up into the uterus and all foreign material removed by the tender touch of an animated curet. If the cervix cannot be dilated by the finger, the metal dilators will have to be used, though all authors advise the use of the finger as both dilator and curet when possible.

4. Remove the contents with a metal curet after using the metal dilators.

The fourth method is the one that requires our serious consideration, for there is probably no greater source of danger in the treatment of abortion, unless it be to fail to provide for asepsis. If the curettage is to be done, is the average practitioner a safe person to perform the operation? Would he use an instrument as fraught with danger anywhere else in the body that is as near the peritoneum? Would it not be safer for him to go into the peritoneal cavity from above for some abdominal trouble where he can see an injury if it occurs, than to risk perforation through the soft, friable and uneven placental site, and only be aware of the damage he has done when sepsis gives him the information? DeLee, McPherson and Edgar, believe that the curet should be used in all cases of abortion, complete and incomplete, to be sure that the uterus is clean, so as to prevent future uterine troubles and future abortions. Baldy, Williams, Haden, and Schwartz, do not use the curet unless it is clearly indicated by some pathological condition.

What I have said in regards to clean cases of incomplete abortion apply with greater force to septic cases.

If the infecting agent is streptococcus, by the time the infection is diagnosed the poison is beyond the reach of the curet, and this instrument only opens up new avenues of entrance. If the infection is from decomposition of the retained contents, these can be removed better by the

finger, to be followed or not by saline irrigation; the temperature will soon fall and the pulse become slower, indicating that the work done has been sufficient. The treatment spoken of is that of DeLee, Edgar, Ries, Watkins, Williams, and others.

The main object of this paper is to call attention to the curet as an instrument of danger when used in unskilled hands, the average general practitioner, and I mean those who have had no experience as assistants, and who have gained their knowledge of its use from textbooks and by observing the operation from a distant seat in the surgical clinic. These cases should be referred, just as any other serious operation, to one experienced in this special line of work.

401 North Allen Avenue.

EDUCATION THE GREAT FACTOR IN PREVENTIVE MEDICINE.*

By WILBUR M. PHELPS, M. D., Staunton, Va.
Attending Physician, Staunton Military Academy;
Member of the Virginia State Medical
Society; Member of Augusta County
Medical Association.

It is the object of this paper to show the relation of education to preventive medicine, but in the necessarily brief and inadequate time allotted to me I can only give an outline of this subject, which is not only of much importance to the medical profession but is of great moment to the public at large.

First, I shall present for your consideration some of the most important conditions which are prominent in this great field of preventable disease.

Statistics, carefully compiled by a member of the last International Congress of Hygiene, show that somewhere in the world a baby life goes out every ten seconds, that a thousand infants die in the United States every day and that one child in every seven dies before it reaches one year of age. Furthermore, thirteen thousand women die annually from diseases incident to childbirth. A large percentage of all these deaths could be prevented if parents understood the laws of maternity and had a knowledge of the proper methods for the care and protection of their offspring.

One of the greatest factors in infant mortality is an impure dairy supply. Milk is one of the most important and universal of foods, but as we

*Read before the Augusta County Medical Association, in Staunton, Va., February 5, 1913.

know, it is one of the best culture mediums for the development of disease germs, such as tubercle bacilli and other bacteria which produce fatal intestinal disturbances. Our mortality statistics show that death from typhoid fever, tuberculosis, enteritis and toxemia may regularly be traced to the use of contaminated dairy products and unfortunately this condition will continue until, through education, the public demands protection and compels a rigid enforcement of laws which shall ensure a safe milk supply.

Nor is milk the only dietetic source of preventable disease, for much more of our food supply is subject to contamination and is a factor in swelling our death rate, because the general public tolerates the filth of insanitary grocery stores, general supply stores, restaurants and hotels, and seems content to live in ignorance of the continued menace of such places.

Despite the great work done by Health Associations and Anti-Tubercular Leagues, there are hundreds of thousands of tubercular patients in this country with an annual death rate of over seventy thousand in the registration area of the United States, and bear in mind, that these statistics cover only fifty-six per cent of our total population, and that this Great White Plague is one of the preventable diseases.

I have not time to discuss the Great Black Plague, or the "Social Evil," which is of such menace to our national development. It is only necessary to point to the hundreds of thousands of prostitutes supported at the terrible expense of the manhood of this nation. And what is the price? Moral leprosy, and diseased bodies, the effect of which are not confined to the first victim but transmitted in all their horrible multiplicity to innocent wives and to vast progeny, whose young lives are sacrificed before they have grown old enough to appreciate their terrible curse, or else come to manhood and womanhood with the insurmountable handicap of diseased organs manifesting themselves in idiocy, insanity, blindness and a hundred and one damnable sequelæ of venereal inheritance.

Another phase of this many-sided question, which is often overlooked, is that young boys and girls form disease-producing habits during their school lives. I believe, from my observations in secondary public and private schools, that at least five per cent of the boys are infected with venereal diseases, that more than fifty per

cent use tobacco to excess, producing irremediable diseases of their respiratory, circulatory and nervous systems. Most if not all of this terrible evil would be prevented if the child received proper instruction, during his formative period in school, and could be taught the physiological reasons for avoiding all practices and habits which would prevent the normal healthy development of mind and body.

I have talked to a large number of boys in secondary schools, and have found them eager to learn about themselves and many of them have stated that if they could only be taught along these lines much of the evil of injurious habits would be prevented, for most of their sinning against the laws of health is done in ignorance. It is sad indeed to see these young people longing for knowledge and finding it only at the expense of their minds and bodies.

Another great evil which has most of its inception in the ignorance of adolescence is intemperance, the far-reaching effects of which are shown in the following conclusions which are based upon a careful survey of evidence, and eliminate all sentimental estimates. They show that from one-third to one-half of the recognized poverty of the United States and England results from the physical and mental inefficiency produced from alcoholic indulgences. In the United States twenty-five to thirty per cent of all the insane patients admitted to the asylums, owe their condition directly or indirectly to the abuse of alcohol.

Doctor Theodore B. Hyslop, Superintendent of the Royal Hospitals of Bridewell and Bethlem, London, believes that alcohol is a factor in the causation of fifty per cent of the cases of insanity admitted to those institutions.

The Massachusetts Bureau of Labor Statistics has reported that eighty-four per cent of all the criminals under conviction in that State, owed, "the condition which induced the crime," to intemperate habits.

Doctor Henry Smith Williams has made a thorough and scientific investigation of available statistics and concludes that "As a minimal estimate, about two-fifths of the paupers in almshouses, one fourth of the seekers of charity outside of almshouses, and almost one-half of the dependent children in America owe their deplorable condition to alcohol." The last census reports one hundred six thousand four hundred eighty-five insane in the United States. The an-

nual cost of their maintenance in public hospitals approximates twenty-one million dollars.

The facts I have so briefly outlined are only a few of the important ones confronting society but despite all the work accomplished by health authorities and benevolent associations a million and a half people die annually in the United States, and over half of them from preventable disease. It is estimated that preventable sickness claims a death toll of over six hundred thousand every year. Not only is the loss in this heavy mortality severe but in addition several million people are thus unnecessarily incapacitated for labor and this needless sickness of the past year resulted in a wage loss alone of over three hundred million dollars.

These figures seem enormous and yet we know that typhoid fever itself killed more than twenty-five thousand victims last year, and typhoid fever is almost one hundred per cent preventable.

Disease is not a natural condition. It results directly and indirectly from the gross ignorance of the laws of health which has prevailed for many centuries. As a result the world is filled with misery, dissolution and death, more than half of which is preventable. This deplorable condition exists because the laws of health are flagrantly and universally violated and will be violated until the lesson of individual responsibility is thoroughly learned. Neither can the physician nor the health authorities be blamed, for the one is only called upon after the damage has been done to the economy, through individual ignorance, and the others have enlisted the devoted and self-sacrificing effort of some of the greatest minds in the world and the expenditure of untold millions from the State and national exchequers. These agencies have set up officially created safeguards to protect communities from the results of their own ignorance, while society has been content to relegate the great subject of hygiene to the specialists and the scientists.

I would not belittle the great and wonderful work accomplished, in protecting the public health, by such men as von Behring, Metchnikoff, Pasteur, Koch and the others of the vast army of scientists whose unselfish labors have accomplished so much for human welfare. But while these men have done much in decreasing infant mortality, banishing epidemics and lowering the death rate, the few statistics, which I

have quoted in the first part of this paper point to the futility of any system which has not for its foundation the education of the masses.

We are all agreed upon the solution of the problem. The next important question is where and how shall this instruction be given. There is only one answer, in the public and private secondary schools of the country. Here the child from the slums as well as the child from the home of luxury learns the lessons which prepare it to take its place in society, and here it should be taught an intimate knowledge of physiology, hygiene and sanitation. Indeed these subjects should be given the first place in the curriculum. To be of educational value they must be taught in the same systematic, thorough and scientific manner as any other branch of learning, the course to cover at least two years of school work of five hours each week. The first year devoted to a foundation in physiology and hygiene, the second, to their application, including sanitation and sex hygiene.

I think it is as great a mistake to attempt to teach sex hygiene before giving a foundation in physiology as it would be to attempt to teach trigonometry before algebra and geometry.

Physiology and hygiene should have the same value in the high school course as chemistry, botany, physics, mathematics, history and languages, and, though up to the present time the most neglected of these subjects, they are without doubt the most important.

Until the dawn of the present century, educated people have been content to live in ignorance of their physical selves, while seeking knowledge of all else in the material and spiritual world. But since the year 1911 there has been an awakened social conscience, stimulated by various federations, public health committees and medical associations. As a result the people are beginning to realize the importance of individual knowledge of physiology, hygiene and sanitation, to the end that each one shall understand the laws which govern his being and shall be able to rear healthy children and to teach them how to grow to perfect manhood and womanhood.

Eugenics, dietetic care, psychological training, sanitation and social hygiene are being taught, in popular form, in twenty-five states, by societies organized for this purpose. Sex hygiene, in modified form, is taught in a hundred and thirty-eight schools and colleges in the

United States, and in the State of Washington this teaching is mandatory for colleges and normal schools. In New York, Chicago and Newark the subjects are being introduced into the high schools.

The communities I have mentioned recognize the fact that the subjects of physiology and hygiene belong in the secondary schools. So the teaching of these subjects in public schools is not an experiment. The New York law requires that they shall be taught in the first year of the high school course. The instructors are appointed only after passing special examinations showing them to be fitted for their work. It is interesting to note that this statute was enacted as a result of public sentiment and the activity of the Women's Temperance Union.

As a high school teacher and as a practicing physician I have devoted a great deal of study to the question of teaching these subjects in schools and am convinced that their place is in the second and third years of the high school course with the other sciences taught in these schools, for they are scientific subjects and to be of pedagogical and practical value must be taught as such. Then, after they have been established as part of the regular high school course, elementary modifications of the subjects may be introduced into the lower grades to lead up to the regular work which the pupil shall reach in the high school.

The objection may be raised that we do not have teachers trained for this work, but when the demand is created the supply will certainly follow as already demonstrated in the States of Washington and New York and in Newark and Chicago.

So the foundation for the building of a better race is being laid and it is recognized by all who give study to the question that the only solution of the great social and economic problems involved is *education*.

All the lines of effort are converging toward the one end, that children shall be born right, of fathers and mothers who have been taught to know and understand themselves and who will place the great Gospel of Health and the Gospel of Christianity side by side in their homes.

There are in the United States ten thousand two hundred and thirty-four public high schools and one thousand nine hundred and seventy-nine private high schools with a total enrollment of one million one hundred and fifteen thousand, three hundred and twenty-six pupils, and it is

my hope that this great school population shall speedily be given full and complete instruction in physiology, hygiene and sanitation. Then will the science of Preventive Medicine replace the present Therapy, and the physician of the near future be called upon to teach his patients how to preserve their health during their allotted three score and ten years, and the parents of the next generation will be trained in the days of their youth.

In presenting this paper it is my desire that the Augusta County Medical Association shall become one of the pioneers in placing physiology and hygiene in the two hundred and fifty-three public high schools and the sixty-three private high schools in the State of Virginia, so that the sixteen thousand pupils therein annually enrolled may receive their birthright, which is a knowledge of themselves and the laws governing their being. These pupils will then become a power in placing this State foremost in the great movement of Preventive Medicine.

To this end I would suggest that our Association elect a Committee on Education and Publicity, whose function shall be to secure the co-operation of prominent citizens of Staunton and Augusta County, and form a permanent organization which shall affiliate with similar organizations to be established throughout the State, and with the State Medical Society, for the purpose of obtaining the necessary legislation. And also that our organization shall interest the press in this great movement so that the general public shall recognize the economic and vital importance of placing physiology and hygiene as major subjects in the curricula of secondary schools.

The above resolution was unanimously adopted by the Augusta County Medical Association, and a committee with Dr. Phelps as chairman was appointed to carry out the suggestions of this paper. (See *Virginia Medical Semi-Monthly*, for February 21 and March 7, 1913.) As a result, the Health Educational Association of Augusta County was formed with Prof. J. P. Neff, of Staunton, as secretary.—[Editor.]

The Virginia State Board of Health

has issued a bulletin entitled *Health Handbook for Colored People*, which gives suggestions for spring cleaning, directions for repairing springs and wells, and practical hints for the sanitation of outhouses.

PATHOLOGICAL CHANGES IN THE CELLS OF THE BRAIN CAUSED BY ALCOHOL AND MORPHINE.

By J. W. WILLIAMS, M. D., Richmond, Va.

"A unicellular organism is millions of times simpler than a human body; still all fundamental functions and processes, such as nutrition, growth, reproduction, excretion, appear similar in both. Hence by studying the influence of alcohol upon these functions in simpler organisms, evidence may be gained by which more clearly to interpret the human experiment."—*C. F. Hodge.*

The organic world is divided into the vegetable and animal kingdoms. The vegetable starts from the *torula* (one cell) and runs up to the patriarch of the forest—the oak. The animal kingdom commences with the *amoeba* (one cell) and multiplies itself up to man who crowns the summit of this living pedestal of animal life—a being of millions of cells. Prof Hodge, in studying the effect of drugs upon the *torula* (one cell—yeast plant), found, after seven hours, in each millimeter of a normal solution containing no alcohol —

2,011 cells.

1191 cells in 1/1000 per cent alcohol.

902 cells in 1/100 per cent alcohol.

852 cells in 1/10 per cent alcohol.

69 cells in 5 per cent alcohol.

"The cultures containing no alcohol are seen to win," says this patient investigator.

In studying the *torula*, the microscopical plant of one cell (yeast plant), a remarkable fact was discovered long ago, viz., that when placed in "sweet wort" or a sugary solution, the fermentation breaking up into water, carbonic acid and alcohol, the yeast plant ceases to grow and multiply when the solution reaches 13 or 14 per cent of alcohol. This unlooked-for fact is in harmony with the recent findings of science as to the inhibiting effect of alcohol upon plant cell-growth. Prof. Ridge placed cress seed in closed glass tubes:

The 1st tube contained pure water.

The 2nd tube contained 1 drop of alcohol to 8 oz. of water.

The 3rd tube contained 1 drop of alcohol to 2 oz. of water.

The 4th tube contained one part of alcohol to 200 parts of water.

The 5th tube contained one part of alcohol to 100 parts of water.

He proved that one part of alcohol to 100 of water actually killed the cress seeds—so, too of geraniums. Prof Kauber, working with a ten per cent solution of alcohol, found it a protoplasmic poison upon all forms of cell-life—both vegetable and animal—upon balsams, geraniums, nettles, aloes, potatoes, as well as upon "cray-fish, perch," etc. "The cray-fish, placed in a 4 per cent solution, died in two days, and perch placed in a two per cent solution became intoxicated, fell to the bottom of the vessel and died." And Sir B. W. Richardsdon observed that a solution of alcohol 1 to 1000, 2000 or even 3000, "proved fatal to fresh-water medusae."

These investigations, and others, clearly lead in one direction: all observers "are now impressed with the fact that both animal and vegetable protoplasmic cells are deleteriously affected by even very small quantities of alcohol." Now these experiments upon the simpler organisms of animal and vegetable life (upon the one cell *torula* and upon the one cell *amoeba* and other lower forms) lead up to the query: How do the narcotics, alcohol, cocaine, morphine, etc., effect the more highly organized and delicate protoplasmic cells of the brain of man? The clergy and the churches, not recognizing the work of the physiologist in the revelations of the microscope, nor of the pathologist working with the same instrument upon the protoplasmic cells of the brain, are disposed to deny that the inebriate and the morphine habitue are suffering from a disease. But science demands that the revelations of the microscope as to the pathological changes in the brain-cells of man as pointed out by Sir Victor Horsley, Prof. Mott and others, be recognized and the theological dictum be set aside as contrary to the (physiological) law and the evidence. The protoplasm is the physical foundation of all cell-life—vegetable and animal. The protoplasm is the "Physical basis of life."—*Huxley.*

"In 1835, DuJardin pointed out the fact that the lowest members of the animal kingdom consist essentially of a structureless, semi-fluid, contractile substance ("Jelly specks") to which he gave the name of "*sarcode*" (rudimentary flesh). In 1851, Von Mohl showed that a similar substance forms the essential constituent of the cells of plants, and termed it "*protoplasm*" (primitive, organizable material). And in 1863, Prof. Max Shultze, who had made a

special study of the rhizopod group, declared that the "*sarcodæ*" of animals and the *protoplasma* of plants are *identical*. It has now been put beyond question that the fundamental phenomena of life are identical in plants and animals, and that the living substance which exhibits them is of a nature essentially *the same* throughout both kingdoms."—*The Revelations of the Microscope*, W. B. Carpenter.

As to the *genesis* of life itself, science accepts the statement of the Bible that Jehovah "is the fountain (*maquor*) of all life." "In *Him* was (ever was) life."—Psalms: xxx-9; John: i-4. As yet, there is no proof of the doctrine of *abio-genesis*—that dead matter can generate life. The British Scientific Association, the highest in the world, in 1900, voiced its condemnation of *abio-genesis* through the address of its president, Sir William Turner: "The doctrine of *abio-genesis* has *not* been experimentally proved. The burden of proof lies with those who hold the doctrine, and the evidence we possess is all the other way." Again: "Living matter during our epoch has been, and continues to be, derived from *pre-existing living* matter, and the morphological unit is the *cell*." *Abio-genesis* originated in 1859 with Darwin's "Origin of Species;" yet in this book Mr. Darwin, himself, says: "Science as yet throws no light on the far higher problem of the essence or *origin* of life."—*Origin of Species*, p. 496. It is just at this point, as to the *genesis* or *origin* of life, that science, groping her way in utter darkness, welcomes the light shed upon this question by the Divine revelation.—Gen.: i-2-5.

The bar of scientific research refuses to accept the theories and traditions of the past unless they are indorsed by science at the bedside and in the laboratory. Two physiological facts suggest themselves just here: (a) That there is a profound connection between the structure of the brain and the mental characteristics displayed by the human being; (b) That even the most moderate approach to perfection of structure can only be expected if suitable and sufficient nourishment and suitable and rational training be supplied during childhood. A child, robbed of sleep, fed often upon wrong food, and never protected from alcohol, tobacco, cigarettes and soft drinks, is a poor specimen out of which to evolve the future, hale, hearty and undegenerate citizen of our country. There is nothing in our public school system to counteract this

downward tendency and deterioration, both mental and physical, of our children—the future citizens of our republic. Popular education is of little avail so long as this insidious undermining of the mental and bodily vigor of childhood and youth is constantly taking place through wrong and injurious treatment of the nervous systems of the young. "Beer is a far more dangerous enemy to Germany than all the armies of France."—*Von Moltke*.

Dr. Mott gives us microscopic and photographic sections of the human brain taken from the sensori motor area, and sections taken from the same area of the brains of alcoholics who died at Claybury Asylum. The contrast is striking. "The nerve cells in the alcoholic brains have extraordinarily *diminished* in numbers, having *degenerated* and *wasted* away. The majority are *shrunk* and *disappear*. The cells *degenerate*, *shrink* and are hopelessly *wasted* away. The cells damaged in this way *never* recover and as far as we know are *never replaced*."—*Sir Victor Horsley*.

Alcohol and morphine are protoplasmic poisons—the one poured daily into the stomach, and the other directly into the blood through the hypodermic needle and carried by the circulation up through the internal carotid and vertebral arteries into the microscopic blood vessels of the pia mater, thus bathing the brain-cells with devitalized and impoverished blood. The effect of such blood, robbed of its natural and healthy cell-food and loaded with such daily and almost hourly doses of alcohol, cocain and morphine, when brought into contact with the brain-cells, has a dual effect: (a) to starve them for the want of the very food upon which their vitality depends; (b) the constant absorption of such impoverished blood by the protoplasmic cells of the brain creates the pathological changes in them that are pointed out by Professors Hodge, Ridge, Rauber, Dr. Mott, Sir Victor Horsley and others, and the poor victim, now diseased, struggles to be free from a curse that is slowly but surely destroying him.

2304 East Broad Street.

From January 1 to March 24, 1913, there were reported in Washington, D. C., 58 cases of smallpox. On March 26, there were 18 cases under treatment, all being of a mild type and no deaths to date.

AN ADDRESS—IN MEMORIAM DR. RAWLEY W. MARTIN.*

By SAMUEL LILE, M. D., Lynchburg, Va

When asked by the President of the Rawley White Martin Memorial Association to deliver a memorial address on this occasion, I could but feel that the subject was too great for me, and that one more worthy should have been chosen. However, as Dr. Rawley Martin was my personal friend, I feel it a privilege as well as a pleasure to speak of him in such terms as not only I knew, but as we all knew him; yet too highly do I esteem the position in which I am placed to feel aught but solemn distrustfulness and apprehension. In the name of his native village, that of his adopted city, and of the State of Virginia at large, I thank you all for the privilege and the honor.

Dr. Rawley White Martin was a native of Virginia, born in Halifax County in 1835, and was therefore in his seventy-seventh year when the end came. From his earliest manhood to a week before the final summons, he gave all the best and noblest in him to his native State. His life has been a refutation of the adage that "A prophet is not without honor save in his own country." He never acted a part to gain a friend or carry a point. Simple, natural and unaffected, his life lies before us as a written page of manuscript, and as the late John W. Daniel said of George Washington, "There was no infirmity in his conduct over which charity must fling its veil; no trait of selfishness from which purity arrests her gaze; no dark recesses of intrigue that must be lit up with colored panegyrics; and no subterranean passages to be trod in trembling, lest there be stirred the ghost of a buried crime," so can we with one acclaim say of our dear deceased friend.

How often in late years have we in our annual meetings heard him with moist eyes and trembling voice allude to the time when he would be forced to say farewell to us, his comrades, and to the old Confederate State Veterans! Such words always bespoke the underlying tenderness of his nature, "even as the storm-wind makes music in its undertones."

Just at the beginning of his professional career, that most terrible of all terrible wars came into our country, wherein it seemed to us

that our *all* was to be taken from us by force of arms or otherwise. He did not hesitate, but promptly enlisted in one of the first companies organized in the State. He enlisted as a private, and so served until promoted from time to time for acts of bravery until he became a Lieutenant Colonel and General Armistead's Chief-of-Staff. His war record was his chief pride, yet so modest was he that when General Fitzhugh Lee wrote his book, and referred to the gallantry of Col. Martin, he really did not know who Col. Martin was, nor did he learn until Gen. Lee asked Dr. Martin if he was in any way related to the Col. Martin spoken of in his book.

"He drew his sword from patriotic impulse, without ambition and without malice, and wielded it with force, yet without vindictiveness, and sheathed it without malice."

"He has seen from his army blanket the stars that redeem the night from darkness and the beams of red light which beautify the morning."

The spill of rank blood before his mighty arm at Gettysburg and other places, nor did he, like the immortal Lee, stop to consider, until a bullet pierced his hip and felled him to the ground.

As Jubal P. Benjamin said of the South in general; so say we individually of our beloved friend: "Traitor! Treason! aye he gloried in such treason as glowed in the soul of Hampden, and in such treason as leaped in living flames from the impassioned lips of Henry, and in just such treason as encircles with a sacred halo the undying name of Washington."

"When from a right motive, with effort and sacrifice, I help a weak and poor brother, I enrich my individual and spiritual being; if, on the other hand, I bestow from a mere gust of feeling, I receive no permanent benefit; if from a bad motive, I impoverish my own soul."

This seems to have been especially the characteristic of our mutual friend; at any rate he so acted in all the walks of life. Never was Dr. Martin known to do anything just because "I can," or "had to" but acted with that impulse "I must," and we all know too well what a bitter trial duty often places on us. To Dr. Martin, age, infancy and helplessness were ever sacred.

After four long years of battling for our rights against the Federal forces, he returned to his native State, conquered by force of arms, but not in spirit, and resumed his great and good work of healing the sick.

*This address was on the program of Medical Society of Virginia, for its meeting in Norfolk, October 22-25, 1912, but the author was absent owing to the death of a brother.

Honors as a Private Citizen.—He was a prophet with honors in his own country, for his native village heaped upon him every honor in her power; his adopted city did likewise, and his native State has always revered and honored him as she has no other private citizen.

The State made him a member of the Board of Visitors of the University of Virginia, a school which is the pride of the whole South. Later he served in the same capacity at the Virginia Military Institute, a Southern institution of which our entire nation is justly proud.

He was also for many years president of the State Board of Health.

The doctors of his State made him president of their great State Medical Association, of their State Examining Board; hence, I ask, did any unassuming private citizen ever carry off so many honors?

A loving cup was presented him by the doctors of Lynchburg, his adopted home, with the love and affection of the entire body, some fifty doctors, and all wished that he could *always* be with us, and assured him that the cup would always be full to overflowing with their love and affection. Could a greater tribute be paid any man than such a gift from the entire body of his rival workers?

Dr. Martin lived for something, and that something was to do good; in so doing he has left behind a monument of virtue that the storms of time cannot efface. And now, friends, let us who have so enjoyed and been so benefited by personal contact with him, show our appreciation by erecting a lasting tribute to commemorate his memory, one that time itself will not destroy, but such an one as will be as everlasting as the handiwork of our Maker; something to be decided on at this meeting, that will be pointed to with pride by ourselves, our children and our children's children, and so on down through all generations.

I feel that when the final summons came, Dr. Martin felt that

"Nothing but mystery here is found,
Where the senses feebly plod;
And the baffled mind by the finite bound
Can never the depths of the infinite sound,
Nor discover the ways of God."

yet

"I see God's love in the fragrant rose,
His strength in each wheeling sphere,
I feel his touch when the Zephyr blows,
His mercy for all like a river flows,
And my soul has ceased to fear."

Proceedings of Societies, Etc.

The Medical Examining Board of Virginia

Met in Richmond, Va., December 17, 1912, at 8.30 P. M.

On roll call the following members were present: Drs. Martin, James, Preston, Barney, Old, Warinner, Wright, Dew, Boyd, Holladay, Glasgow, Williams, Corey.

Board called to order by the President, who requested Dr. Barney to open the meeting with prayer. Minutes of the last meeting were read and approved.

Mr. R. C. Stearnes, Secretary of State Board of Education, was present by request and informed the Board that the State Board of Education had adopted as the standard for medical students and graduates who apply for examination before our Board that they shall be attendants or graduates of medical schools or colleges not lower than Class A, this standard to go into effect at the June, 1913, meeting.

Dr. Barney offered the following resolution, which was adopted: That \$50.00 of the funds in the Patrick County Bank be placed with Dr. Preston to aid in the prosecution of irregular practitioners in Roanoke, Va., if required.

The Question Committee reported that they had examined all of the questions of the respective examiners and approved them.

Drs. Glasgow and Preston were appointed by the President to audit the books of the Treasurer. They reported later that all funds were properly accounted for, and that there was a balance on hand of \$1,436.70.

Dr. Warinner moved that a member of the Board be appointed on the Reciprocity Committee to act until Dr. James appeared. Dr. Barney was appointed.

Dr. Corey offered the following resolution, which was adopted: Inasmuch as it seemed to be the concensus of opinion of the Board at the June meeting that its members act as monitors, that the Board see to it that at least two members other than the examiner in charge act as monitors at each examination.

Dr. Holladay offered the following resolution, which was adopted: If a registered applicant for reciprocity is not granted same, that only \$20.00 of his fee be returned.

The Board adjourned to meet at 10 A. M., Wednesday, December 18.

DECEMBER 18.—Board called to order by the President. Roll call showed the following members present: Drs. Corey, Boyd, Holladay, Dew, Wright, Preston, Williams, R. S. Martin, James, Warinner, and Barney. Minutes were read and approved.

Dr. James, for the Reciprocity Committee, reported that the following applications had been approved and were recommended for reciprocity, which was granted: Drs. Emory E. Bell, J. W. Heustis, R. D. Wolfe, C. N. Sisk, R. C. Bayly, A. H. Deekens, A. C. McCall, V. H. McKnight, Alvah P. Bohannon, J. M. Hamilton, H. J. Hoeve, Pearl Hoeve, H. G. Steele, W. A. Carr, J. J. Phillips, G. C. Hall, F. X. Lilly, S. C. Draper, Frank Levinson, Harry Harrison, J. H. S. Morison, J. C. Bowman, H. W. Carter.

Meeting adjourned until 10 A. M. Thursday.

DECEMBER 19.—Meeting called to order by President. Present—Drs. Corey, Martin, Dew, Barney, Williams, Boyd, Preston, Glasgow, Wright, James, Warinner and Old.

The President addressed the Board concerning its future action in regard to preventing cheating at examinations, reciprocity and registration. There was much discussion of same by Drs. Wright, Williams, Corey, Dew, James and Old, and the suggestions of the President were highly commended and were adopted in the by-laws that followed.

Dr. Wright offered the following resolution, which was adopted: That a committee be appointed to bring in resolution concerning reciprocity. Drs. Wright, James and Barney were appointed on the Committee, and the Board adjourned until 12:30 P. M. in order to give the Committee time to report.

Dr. Wright offered the following resolution on part of the Committee, which was adopted: Resolved, That it is the sense of the Medical Examining Board of Virginia that it is but just that any person known to be qualified should be licensed to practice anywhere, but on account of legal restrictions over which we have no control, we can license, without a written examination, only such persons as have passed an examination in another State whose requirements are equal to ours. The Virginia Statute prohibits us from admitting to examination graduates from schools of a lower grade than Class A.

Dr. James offered the following resolution, which was adopted:

Be it resolved, That the President appoint for each subject for examination three members of the Board to conduct said examination, the members thus appointed to be present in the hall at the time of the examination, and they are not to read papers or to indulge in any conversation. Any member thus appointed who fails to comply with these requirements is to be fined \$5.00 for said offense.

In reporting to the Secretary the result of examinations the chief examiner should state who was present and assisted him in conducting examinations; and who, if any, failed to comply with said requirements. The Secretary shall then impose a fine of \$5.00 on such delinquent, and report same at next meeting of the Board.

Dr. Glasgow offered the following resolution, which was adopted: That the President appoint two members to serve in capacity of monitors, and the Secretary to employ two monitors other than members to conduct the next June examination. The Secretary was instructed that the Board did not feel itself to be under any obligation to pay the Secretary of the State Board of Education for passing on the preliminary education of the applicants last June.

Dr. Holladay moved that a vote of thanks be sent to the University College of Medicine for the use of the rooms for conducting the examination. Carried.

Board adjourned to meet in Richmond on June 24-27, 1913.

R. S. MARTIN, President.

HERBERT OLD, Sec'y-Treas.

QUESTIONS FOR EXAMINATION OF APPLICANTS FOR CERTIFICATES OF LICENSE TO PRACTICE IN VIRGINIA, DECEMBER, 1912.

Materia Medica.

Dr. Robert Glasgow, Examiner, Lexington, Va.

1. What is meant by the incompatibility of drugs, and give an illustration?
2. Name, with dose of each, the official preparations of opium and its alkaloids.
3. Define digestants. Name two that are frequently prescribed, stating the best time for administering same.
4. What is caffeine and what are its medical uses?
5. Give the preparations and doses of hydragric.
6. What is paraldehyde, and what its classification as a drug?

7. Describe in detail (noting the usual precautions and contra-indications) the administration of ether by inhalation.

Therapeutics.

Dr. J. E. Warinner, Examiner, Richmond, R. D., Va.

1. Write one prescription for a stimulating expectorant and one for a sedative cough mixture.

2. Formulate a compound cathartic pill containing three ingredients in proper doses, acting on different parts of intestinal canal.

3. What are the uses of nitroglycerine in medicine, and by what other names is it known?

4. Which preparations of mercury are used as cathartic, which as alternative, and which is emetic?

5. Give the strength of following solutions:

a. Nitrate of silver for ophthalmia neonatorum.

b. Cocaine hydrochlorate for local anesthesia.

c. Sulphate of zinc for conjunctivitis.

d. Bichloride mercury as uterine douche.

Toxicology.

1. Give cause, symptoms and treatment of ptomaine poisoning.

2. Name four most prominent poisons and give their respective antidotes, chemical and physiological.

3. What is active principle of belladonna, giving symptoms of toxic dose and treatment?

Medical Jurisprudence.

Dr. J. W. Preston, Examiner, Roanoke, Va.

1. Give the more important steps in post-mortem examination in case of suspected poisoning.

2. What are the signs of drowning?

3. What constitutes malpractice?

4. State the essentials of a dying declaration.

5. Give briefly technique of determining whether a given stain be that of human blood.

Questions on Hygiene and Preventive Medicine.

Dr. O. C. Wright, Examiner, Jarratt, Va.

1. How would you disinfect after a case of tuberculosis?

2. Describe the management of an outbreak of diphtheria in a school.

3. In inspecting the source of a water supply, what would you look for?

4. What diseases are spread by the house fly?

5. How is ophthalmia neonatorum contracted and how prevented?

Chemistry.

Dr. J. N. Barney, Examiner, Fredericksburg, Va.

1. Discuss chlorine, manufacture, properties, and uses.

2. What do you mean by valence? Give valence of N, O, Cl, and Fe.

3. $C_{12}H_{22}O_{11}$ with heat and dilute acid=

4. Name total number of elements, giving those which are ₁gaseous and ₂liquids, and tell how the atomic weight of an element may be found.

5. Discuss chemistry of bread making.

6. Name four of the fatty acid series, and give formula and preparation of one.

7. How is KI made, and give properties and uses?

8. Name two chief gases used for illuminating purposes, and give the chemical differences.

9. Name three substances precipitated by H_2S and how distinguished.

10. Define: 1Argol. 3Corundum. 5 $C_3H_5(OH)_3$, 2 Benzine. 4Alizarin. 6Pearlash.

11. Give a chemical test for presence of strychnine.

12. Give a chemical test for chloesterin in faeces.

Pathology and Bacteriology.

Dr. Lewis Holladay, Examiner, Orange, Va.

1. Discuss thrombosis, name the most important factors favoring it, state whether it is most common in the venous or arterial system, and why.

2. Give the pathology of chronic gastritis, and name the most frequent etiological factor of chronic gastric catarrh in adults.

3. The absence of what two reflexes is the most constant of all known symptoms of tabes dorsalis? Etiology of locomotor ataxia; state what part of the cord is involved and pathology of same.

4. In what four ways may metastatic growths originate?

5. Discuss the pathological conditions in the lung you would expect to ensue upon the embolic plugging of one of the larger branches of the pulmonary artery.

6. Give a general description of the blood picture in pernicious anemia. What form of degeneration is found in the heart in this disease?

7. To establish the etiological relationship of bacteria to disease, what four laws has Koch laid down which must be conformed with?

8. Define bacteria, classifying according to form, habitat and oxygen requirements.

9. What are bacterial vaccines? Distinguish between autogenous vaccines and stock vaccines.

10. Name four pathogenic anaerobes. Give the morphology and pathogenesis of any one of them.

Practice of Medicine.

Drs. J. G. Rennie, Petersburg, and E. C. Williams, Hot Springs, Va., Examiners.

1. Give the etiology of simple acute adenitis, its most common location and its treatment.

2. Define ascites and differentiate it from any two conditions that may simulate it.

3. Give the etiology, symptoms and most usual complications of erysipelas.

4. Give the etiology, complications and treatment of acute pharyngitis.

5. Tell what is meant by normal bronchial and normal vesicular breathing. State frequency of respiration and the pulse-respiration ratio.

6. Define—bulimia; papilloma; leukocytosis; ptosis; thrush.

7. Differentiate scabies from pustular eczema.

8. Give the general, dietetic and drug treatment of a case of pneumonia.

9. Give the etiology and symptoms of acute diffuse peritonitis and differentiate it from acute enterocolitis.

10. Give treatment of enuresis.

Examination on Obstetrics and Pediatrics.

Dr. W. W. Chaffin, Examiner, Pulaski, Va.

1. Give your conduct of a case during the last three months of gestation, including your directions as to final preparations for the confinement.

2. Give in detail your management of a case of normal labor from beginning to end.

3. Mention the conditions under which you would rupture the membranes.

4. Describe fully three methods (non-surgical) of protecting the perineum in the delivery of the head in an anterior presentation.

5. Mention six causes of retained placenta.

6. Called to a case a few days after delivery, and finding the mother had a chill, headache, pains in the back and limbs, temperature of a hundred and two or three, lochia normal and no abdominal or pelvic symptoms, what would you most likely find the matter with her and what would be your treatment?

7. What is the corner-stone of preventive treatment of puerperal eclampsia?

8. Mention the principal points of difference in acute articular rheumatism in children and adults.

9. In case a mother came to you complaining that her child had severe "growing pains," what would you suspect was the real trouble with the child, and what would be your treatment?

10. Make a differential diagnosis of rubella, and treat the case.

Anatomy and Histology.

Dr. P. W. Boyd, Examiner, Winchester, Va.

Anatomy.

1. What muscles are attached to the clavicle?

2. Classify and describe the wrist-joint.

3. Name the muscles of the orbital region. Give origin, insertion and nerve supply of the external rectus.

4. Locate and describe the gall-bladder.

5. Give the blood and nerve supply of the thyroid gland.

6. Describe the internal or long saphenous vein.

Histology.

1. Name the properties of the cell.

2. What is a neuron?

3. From what layer of the embryo is the vascular system derived?

4. How do veins differ from arteries?

Examination Surgery, Gynæcology, and Genito-Urinary Diseases.

Dr. H. W. Dew, Examiner, Lynchburg, Va.

1. Give difference between benign and malignant neoplasms. Give an example of each.

2. Define caries, necrosis. Give changes which take place in bone in each.

3. What tissues are affected in arthritis deformans? What changes take place in the joint?

4. Define true and false (a) neuroma; (b) angioma.

5. What is secondary hemorrhage? Give its cause and treatment.

6. What are the indications, and give method of ligating the common carotid artery?

7. What is a teratoma? Is it congenital or acquired?

8. Differentiate between dorsal dislocation of the hip and tubercular coxitis.

9. What is phimosis? Differentiate between gonorrheal and chancroidal phimosis.

10. What is glaucoma? How would you diagnose it?

Gynæcology.

11. Define pelvic hematocoele, hematoma. Give treatment for each.

12. Describe the three varieties of uterine fibroids; what are the dangers to the patient if they are not removed?

Physiology.

Dr. R. B. James, Examiner, Danville, Va.

1. What is meant by metabolism? Nutrition? Digestion?

2. What chemical elements enter into the composition of the human body?

3. Give names, location, manner of communication with buccal cavity of salivary glands and function of saliva.

4. Describe the pancreatic juice and the part played by each constituent in digestion.

5. Describe the different blood currents of the heart and the action of the valves during a complete systole.

6. What four factors are essential in keeping up the arterial blood pressure?

7. Why does certain weakened condition of the heart cause edema or dropsy in tissues of the body?

8. Give distribution of third cranial nerve and the phenomena that occur when it is paralyzed.

9. How many pairs of spinal nerves? What is a mixed nerve?

10. Give the physiology of reducing the body temperature by a sponge bath, when the skin is cold and when it is hot.

Embryology.

1. Describe the fertilization of an ovum. Where may this occur?

2. Describe briefly the formation of placenta. Give its function.

Alphabetically Arranged List of Applicants for License to Practice Medicine, Surgery, Etc., Who Passed Satisfactory Examinations Before the Medical Examining Board During Its Session December 17-20, 1912, Richmond, Virginia.

Apperson, Luther H., Tunstall, Va., Med. Col. of Va., 1913.

Andrews, Charles G., Memphis, Tenn., Memphis Hosp. Coll. of Med., 1902.

Ashburn Lydie E., Portsmouth, Va., Howard University, 1912.

Bear, Joseph, Richmond, Va., Medical College of Virginia, 1912.

Bowman, Jacob C., Berkley, Va., North Carolina Medical College, 1910.

Bohannon, Alvah P., Baltimore, Md., University of Maryland, 1905.

Bassett, Burle, Hampton, Va., Howard University, 1912.

Bayly, Rozier C., Markham, Va., Georgetown University, 1905.

Bell, Emory E., Berlin, Md., P. & S., Baltimore, 1904.

Carr, Arthur D., Richmond, Va., Howard Medical College, 1912.

Carey, S. B., Richmond, Va., Medical College of Virginia, 1912.

Carter, Henry Walton, Norfolk, Va., University of Virginia, 1895.

Carr, Walter A., Narrows, Va., College P. & S., Baltimore, 1907.

Darden, St. Clair, Norfolk, Va., Medical College of Virginia, 1912.

Draper, Samuel C., Galax, Va., Medical College of Virginia, 1908.

Deekens, Arthur H., Madison Heights, Va., University of Pennsylvania, 1889.

- Darden, James B., Petersburg, Va., Meharry Medical College, 1912.
- Ebert, J. W., Winchester, Va., University of Maryland, 1912.
- Huffman, F. B., Newport, Va., Maryland Medical College, 1909.
- Hamilton, J. M., Shawnee, Tenn., Tennessee Medical College, 1900.
- Harrison, Harry, Norfolk, Va., University College of Medicine, 1911.
- Hall, George C., Richmond, Va., Harvard Medical School, 1890.
- Heustis, James Walter, Washington, D. C., Harvard Medical School, 1884.
- Hooker, Raymond C., Richmond, Va., Medical College of Virginia, 1912.
- Hoeve, Pearl E. B., Meherrin, Va., Drake University College of Medicine, 1909.
- Hoeve, H. J., Meherrin, Va., College P. & S., Chicago, 1905.
- Kyle, Bernard H., Buffalo Station, Nelson Co., Va., Medical College of Virginia, 1911.
- Leech, J. G., Goshen, Va., University of South, 1909.
- Levinson, Frank, Baltimore, Md., University of Maryland, 1911.
- Lilly, Fred X., Jumping Branch, Va., University of Louisville, 1910.
- McCall, Alvin C., Portsmouth, Va., University of Maryland, 1910.
- McKnight, V. H., Rocky Mount, N. C., University of Maryland, 1910.
- Meddley, Samuel C. B., Roanoke, Va., Leonard Medical College, 1912.
- Moore, Mervin B., Raven, Va., Tulane University 1912.
- Morison, J. H. S., Cumberland Gap, Tenn., Hospital College of Medicine, Louisville, Ky., 1908.
- Randolph, B. F., Arrington, Va., University College of Medicine, 1912.
- Rogers, Clarence A., Raleigh, N. C., Leonard Medical College, 1912.
- Steele, H. G., Keystone, W. Va., College P. & S., Baltimore, 1903.
- Sisk, C. N., Portsmouth, Va., University of Nashville Coll. Med., 1905.
- Phillips, James J., Roanoke, Va., College P. & S., New York, 1894.
- Wolfe, R. D., Norfolk, Va., George Washington University, 1908.
- Woolridge, Thomas J., Oakville, Va., Leonard Medical College, 1912.

INSTITUTIONS REPRESENTED BY APPLICANTS
WHO CAME BEFORE THE
MEDICAL EXAMINING BOARD OF VIRGINIA
FALL SESSION, AT RICHMOND, VA., DECEMBER, 17-20, 1912.

	Total Number of Applicants from Each College	Total Number of Applicants Licensed from Each College	Total Number of Applicants Rejected from Each College
American School of Osteopathy.....	1	..	1
Leonard Medical College.....	5	3	2
University College of Medicine.....	2	2	..
Medical College of Virginia.....	10	7	3
Hospital College of Medicine.....	1	1	..
Georgetown University.....	1	1	..
University of Virginia.....	1	1	..
University of Pennsylvania.....	1	1	..
Howard University.....	3	3	..
Tennessee Medical College.....	1	1	..
Meharry Medical College.....	2	1	1
George Washington University.....	1	1	..
University of Louisville.....	1	1	..
Maryland Medical College.....	2	1	1
University of the South.....	1	1	..
University of West Tennessee.....	1	..	1
University of Maryland.....	5	5	..
Chattanooga Medical College.....	1	..	1
Memphis Hospital College of Medicine.....	1	1	..
North Carolina Medical College.....	1	1	..
P. & S. Baltimore.....	3	..	..
Harvard Medical School.....	2	3	..
Drake University College of Medicine.....	1	1	..
P. & S. Chicago.....	2	1	1
Tulane University.....	1	1	..
P. & S. New York.....	1	1	..
University of Nashville College of Medicine.....	1	1	..
University of Tennessee.....	1	..	1
TOTAL	54	42	12

FLOYD COUNTY MEDICAL SOCIETY.

Reported by M. L. DALTON, M. D.

The physicians of Floyd County, Va., met December 10, 1912, and organized a society to be known as the Floyd County Medical Society. The following officers were elected: President, Dr. J. W. Thurman, Pizarro; Vice-Presidents, Drs. J. M. Harman, Floyd, and Chas. K. Burnett, Willis; Secretary-Treasurer, Dr. E. L. Lawrence, Floyd; Executive Committee, Dr. M.

L. Dalton, Chairman, Floyd; Dr. R. T. Akers, Alum Ridge; Dr. J. C. Rutrough, Willis; Dr. J. C. Sumner, Terrys Fork; Dr. J. L. Harvey, Simpsons. The committee met March 11th, and decided to hold the next meeting June 10, 1913. Meetings will thereafter be held quarterly.

Dr. L. Slusher, of Willis, Va., was thrown from his buggy March 9th, and badly injured, caused by his horses taking fright and running away. Owing to the Doctor being advanced in

years, his recovery was at first considered doubtful, but we are glad to say at this time he is doing well and will soon be able to resume his practice.

NINTH ANNUAL CONFERENCE OF THE AMERICAN MEDICAL ASSOCIATION ON MEDICAL EDUCATION AND LEGISLATION.

Reported by CHARLES M. HAZEN, M. D., Bon Air, Va.
Professor of Physiology, Medical College of Virginia.

On the second and third days of the Conference, discussion was continued as to preliminary education, organization and State legislation.

Dr. Cressy L. Wilbur is a speaker who is always listened to with great interest and respect. He is the head of the Bureau of Vital Statistics in Washington and reported upon recent State laws. He praised the progress in Virginia, but said the law was "hampered by undue economy." He stated that Baltimore, New Orleans and Chicago have the least satisfactory registration of birth rate in the world.

Dr. Webster, of the Illinois State Health Board, discussed Dr. Wilbur's paper. He called vital statistics "The book-keeping of humanity," and said that the laws with reference to them were "a measure of the public health conscience."

Prof. E. O. Jordan, of Chicago, read a noteworthy paper upon *Municipal Regulation of Milk Supply*. Dr. Cannon discussed *Antivivisection Agitation and the Forces Behind It*.

Among other reports from the States, the Ohio representative spoke of the unusual occurrence of the Governor calling together for a conference before the meeting of the legislature, members of the State Examiners, the Health Board and others interested in health and medical education. He said that at the last legislature Governor Harmon "wrote a veto on the optometry bill which was a classic." The Ohio Assembly was expected to pass at this session a law against advertisements to cure sexual diseases, tuberculosis and cancer; a law allowing any five counties to establish together a tuberculosis hospital; and a law taking over the work of the State Society against tuberculosis.

South Carolina's health legislative programme is a progressive one; but the Governor was expected to veto pretty much all of it. There is to be a pellagra hospital in the county of Spartanburg, financed by an appropriation of \$6,000 and a tax of one cent a spindle in the cotton mills, amounting to \$5,000.

Tennessee has a new examining law similar to Virginia's, as to medical schools, preliminary education, etc.

Oklahoma has a new bill defining the practice of medicine.

The meeting of the American Medical College Association, which was a member of the Conference, dealt with inspection of the schools in its membership. (It was discovered in private conversation, although not reported in the meeting, that an inspection of the Richmond schools was recently made by the A. M. C. A., somewhat "unbeknownst" to the schools themselves).

Dr. Means, who is the "original member," so to speak, and who has been for years the actual head of it, spoke of the Association as a "pædagogic institution;" and this indicates the line of effort which is the main-spring of this organization,—not to form a monopoly of medical schools, nor even to protect them, but to bring them to the highest grade of teaching efficiency.

Other speakers, whose ideas and reports were of especial interest, were Dr. Victor Vaughan, dean of the Michigan school, who referred to the standardization of hospitals begun by that school. In this connection he mentioned what may be considered as post-graduate experience in health-work offered to the young physician by the Michigan plan.

Dr. McCormack, of Bowling Green, Ky., who has been prominent in much of the advance work of the American Medical Association, spoke with enthusiasm of the progress of the National Health Department idea, which would be carried through by the next Congress.

Dr. Pepper, of Pennsylvania, attracted attention by his paper, dealing chiefly with the fifth or hospital year of medical study. He concluded that the State Examining Boards must standardize hospitals, and that they should hold their practical examinations for licensure in these hospitals. He took the rather unusual ground that if hospitals were properly standardized, control of them by medical schools would not be necessary; that if a hospital were limited for internes to the graduates of one college, it would result in "in-breeding."

The unity of aim and action of the associations which make up these conferences is remarkable and the results so far are far-reaching,—beyond what could have been expected.

Analyses, Selections, Etc.

Treatment of Acute Coryza.

Garel advises that at the commencement such general treatment as is productive of sweating should be employed, as, for example, mustard foot-baths, tincture of aconite, Dover's powder, or Mindererus' spirit; and to arrest its progress he advises inhalations of hot water for five minutes at a time, three or four times a day, after painting the nasal mucous membrane with two or three drops of 1 in 1,000 solution of adrenalin. In the adult, 1-200 grain of atropine sulphate, morning and evening, will check the excessive nasal secretion. As abortive treatment a nasal douche of lemon juice, repeated twice, usually suffices. Roux prefers eau-de-Cologne for the purpose. Rubbing of the nose between the thumb and forefinger, by increasing the hyperæmia of the mucous membrane, sometimes acts wonderfully. Hayem advises that a few drops of the following mixture be poured on blotting-paper and the vapour inhaled for a few seconds:

Carbolic acid	1 part
Ammonia water	1 part
Alcohol	2 parts
Distilled water	3 parts

Such inhalations should not be abused, because they may be productive of aural complications. Equal parts of camphor and bismuth subnitrate are recommended as a snuff.

But, perhaps, the treatment that gives the most relief is adrenalin. A brush should be dipped in two or three drops of 1 in 2,000 adrenalin solution and the Schneiderian membrane lightly touched with it. An agreeable inhalation may be made from decoction of verbena, to which is added a teaspoonful of a solution of menthol in olive oil. The febrile symptoms may temporarily be checked by means of a spray of antipyrin 2 to 4 in 1,000.

When inflammation arises on the lips or at the nasal orifice the following ointment will be found useful:

Cocaine hydrochlor	gr. j.
Tannin	gr. 10
Cold cream	gr. 40

— (*Critic and Guide*, March, 1913.)

Epilation.

The destruction of unsightly superfluous hair and soft down is often a matter of some difficulty. Saalfeld (*Med. Klinik*) claims that the following formula may be used without danger for this purpose:

Barium Sulphide, Gm. 5.

Prepared chalk, Gm. 10.

This is mixed with a little water in a watch glass and applied to the part to be denuded with aid of a wooden or horn spatula. After two minutes, the paste is removed. The hair will usually have disappeared by this time; sometimes, however, a little longer time is required. After treatment, the part is cleansed with soap and water, dried, and a few drops of almond oil applied to the surface. Begin the application on a small part in order to determine the tolerance of the skin.—(*Ibid.*)

The Diagnostic Value of Gonococci Vaccine.

The injection of 50 to 100 millions gonococci may cause a general reaction, similar to that produced by tuberculin, with pain in the infected areas, such as joints, tendons, tubes, the prostate, and peritoneal or pleural infections; such results are often of value in making a diagnosis in obscure conditions.

The local diagnostic reactions have been advised; one is to scarify the skin and rub in a glycerin suspension of gonococci, as in the Von Pirquet method. Bruck, Reiter and Irons have used this reaction. A positive reaction occurs in from twelve to twenty-four hours, and appears as an area of hyperemia from 5 to 10 millimeters in diameter, or as a papule. A control inoculation is made with a glycerin extract of the washings from the same number of uninoculated culture tubes. Neither this nor the following test is as reliable as the complement fixation reaction, which, however, has the difficulty of being much more difficult to perform.

The other method is to inject into the skin, not under it, two or three minims of a suspension of dead gonococci of a strength of from 50 to 100 million per c. c. The needle should be sterilized by boiling in plain water so as to have it free from chemical irritants. A small wheal forms at the site of the injection. If the reaction is positive, in about 24 hours a red-purple, surrounded by a zone of lighter red, is formed two or three inches in diameter. At times, the whole area may be elevated. It usu-

ally fades in two days; but occasionally lasts for a week.

In discussing this reaction, London says: "In cases in which the causative agent of an affection, such as synovitis, is known, the skin reaction may be negative. In seeking for an explanation in such a case it is probably, from present ideas of anaphylaxis, that the failure to react to foreign protein of a specific nature is as follows: In inactive cases, that is, in cases not progressive and not associated with septic phenomena—such as chills, sweats, fever, rapid pulse, emaciation, etc., the immunizing apparatus has not recently been stimulated to react against this specific irritant; in other words, it has not been sensitized. This may help to guide us in a choice between vaccine and serum treatment. If the defensive powers of the body do not produce antibodies to antagonize the specific protein contained in specific germs, or their toxins, measures looking toward an active immunization by vaccines are apt to fail, and we must strive to obtain passive immunization by means of protective sera containing preformed the specific antibodies for the specific micro-organisms involved. This may help to account for the fact that widely different results are obtained in gonorrheal arthritis by the vaccine treatment. While some results have been brilliant, others have been disappointing. It must be borne in mind, however, that there are border-line cases that react to vaccination only after prolonged treatment, the first injections probably sensitizing the patient to the later injections, thus ultimately causing the reaction and cure." —(*Editorial, Journal-Record of Medicine, March, 1913.*)

Misapprehension as to the Novelty of the Friedmann Treatment.

In view of the newspaper sensation caused by the announcement by Dr. Friedmann of another "cure" for tuberculosis, it would seem well to review some of the facts previously known. Even editors of medical journals, who should be conversant with the history of medicine and of tuberculosis, have been led into grave error. For example, a recent editorial in a medical journal, from which the *Literary Digest* quotes, makes the statement that "Friedmann came to the conviction that the most potent curative and immunizing powers lie in the living bacterial organism itself, and not in the dead organism,

as used in the method of Wright and his school." The editorial says further, "Our own impression from the entire debate is that Friedmann has enunciated a principle of far-reaching consequence and has probably discovered a remedy that influences tuberculosis favorably." The effect of this editorial is to credit to Friedmann the discovery that in order to produce immunization against tuberculosis, living cultures are necessary. For the truth of medical history as well as the credit of American physicians, it is well to point out some of the things which were done years ago.

In 1892 and 1893, Trudeau, of Saranac Lake, demonstrated the fact that subcutaneous inoculation of living cultures of avian tubercle bacillus greatly increased the resistance of rabbits against infection by virulent mammalian cultures. He immunized rabbits to such an extent that when they were inoculated with virulent cultures, the inflammatory reaction gradually disappeared, leaving the eye in the normal condition, while in control animals the destruction of the eye was complete. As far as we have been able to discover, Trudeau was the first to announce the principle that living cultures must be used in order to produce an efficient immunity against tuberculosis.

De Schweinitz in 1894 immunized animals with human tubercle bacilli which had been cultivated for twenty generations on slightly acid broth. At the end of this time the cultures were virulent for guinea-pigs, but were capable of immunizing these animals to such an extent that they resisted infection with the bovine germ. Control animals died in seven weeks.

Pearson and Gilliland demonstrated that human tubercle bacilli which were not virulent for cattle would produce a high degree of immunity when injected into the circulation. In 1905, the same authors demonstrated a strong curative action on tuberculosis from injections of non-virulent tubercle bacilli derived from human beings.

Webb and Williams demonstrated that immunity against tuberculosis could be produced by the inoculation of living tubercle bacilli, beginning with small doses and gradually increasing.

If we go to foreign publications, it is easy to multiply instances of the use of living cultures. In 1901, McFadyean not only demonstrated his ability to produce immunity in cattle by the use

of living cultures, but also in one case treated an animal which was already tuberculous. The animals resisted for a long time injections of tubercle bacilli of proved virulence for cattle.

In 1901, von Behring announced his method of bovo-vaccination, the first detailed publication of which appeared in 1902. Living cultures were used.

In 1903, Thomassen reported experiments in which, by the intravenous injection of human tubercle bacilli into young cattle, he produced a considerable degree of immunity.

Valle, in 1909, reported experiments in which young animals were rendered highly immune against virulent bovine infection by the use of non-virulent living cultures derived in the first instance from a horse.

Instances could be multiplied, but these are enough to demonstrate that Friedmann has not discovered or announced any new principle in regard to the immunization against tuberculosis. As far as our knowledge goes, he has followed methods which were demonstrated first in this country, and have been confirmed by many workers in America and Europe.

The psychology of the excitement of the public over Friedmann is hard to understand except on the basis of clever press-agent work. Practically every fact which he has brought forward has been known for years. Why the bacillus from the turtle should possess special curative value for the human being is a mystery, although, of course, it cannot be denied that it is within the range of possibility that such a thing may be true. The point of scientific interest that should be made clear, however, is that he has discovered no new principle, at least so far as the published communications go. The principle of using slightly virulent cultures derived from another species was demonstrated by Trudeau in 1891 and 1892. The principle of intravenous injection for the best production of immunity against tuberculosis was demonstrated by Pearson and Gilliland and others in 1902. It seems, then, that if he has discovered anything at all it is only a culture which possesses unusual immunizing powers for human beings.

Practically, of course, the point of interest is in the question whether or not a harmless and clinically efficient immunizing culture has actually been worked out. On this point we still await authoritative tests, for we have no information that Dr. Friedmann has yet submitted

his treatment to investigation by competent and unprejudiced experts in the treatment of tuberculosis. The announcement that he has agreed to submit his method to be tested by the New York City Department of Health and by the Public Health Service will, perhaps, be viewed with natural skepticism until the test has actually taken place, in view of the fact that he withdrew the offer to submit the treatment to his own government. If it proves its worth under adequate, unbiased scientific investigation, the medical profession, of course, will be only too glad to forget the unfortunate features in its exploitation which have raised a presumption against its worth. Until then, the public and the profession alike may be pardoned for remembering that a patent was applied for and the treatment advertised before its value was established; that as yet we have the word of no one who has actually tested it except Dr. Friedman and his assistants or associates and, finally, that, although there is no lack of clinical material in Germany, he has chosen to bring it to America first from no other apparent motive than pure commercialism.—(*Editorial, Journal A. M. A., March 8, 1913*).

(Since the above was written, Friedmann's preparation has been submitted to the New York City Health Department and to the Public Health Service, but, of course, the examinations by these organizations have not yet been completed. It is interesting to note that the reasons given by the German examiner of patents for not granting the patent are substantiated in part in the article set forth above.—M. W. P.).

Editorial.

Dr. R. S. Martin Succeeds the Late Dr. Rawley W. Martin on the Editorial Staff of the Semi-Monthly.

It is with pleasure we can announce that, beginning with this issue, Dr. R. S. Martin, of Stuart, Va., will serve on the Editorial Staff of this journal, to supply the vacancy caused by the death of the lamented Dr. Rawley W. Martin.

Our new editor has filled many positions of honor in this, his adopted State, for although a North Carolinian by birth, he is ex-president and honorary member of the Medical Society of Virginia, and was for a score of years secretary

of the Medical Examining Board of Virginia, of which body he was recently elected president.

New Faculty for the Medical College of Virginia and University College of Medicine, Amalgamated.

At a recent meeting of the Board of Visitors of the Medical College of Virginia, the following Professorships and Associate Professorships were established, and the name of the party appearing under each was elected to fill the position for the period ending with the annual meeting of the Board to be held in 1914:

DEPARTMENT OF MEDICINE.

Emeritus Professors: Christopher Tompkins, M. D., Emeritus Professor of Obstetrics; George Ross, M. D., Emeritus Professor of Obstetrics; William H. Taylor, M. D., Emeritus Professor of Chemistry.

Anatomy: Professor—W. G. Christian, M. D.; Associate Professor—John W. Brodnax, M. D., Ph. G.

Histology and Embryology: Professor—W. A. Shepherd, M. D.

Chemistry: Professor—Wortley F. Rudd, M. A., Ph. B.; Associate Professor—E. C. I. Miller, M. D.

Physiology: Professor—Alfred L. Gray, M. D.; Associate Professor—C. Howard Lewis, M. D.

Pathology: Acting Professor—S. B. Moon, M. D.; Associate Professor—E. Guy Hopkins, M. D.

Bacteriology: Associate Professor—A. H. Straus, B. S.

Hygiene and Public Health: Associate Professor—Ennion G. Williams, M. D.

Pharmacology and Therapeutics: Professor of Pharmacology and Therapeutics—Francis W. Upshur, M. D.; Associate Professor of Materia Medica and Pharmacology—Leslie B. Wiggs, M. D.

General Medicine: Professor of Medicine—William S. Gordon, M. D.; Professors of Clinical Medicine—Edward McGuire, M. D., and Manfred Call, M. D.; Associate Professors of Medicine—Theory and Practice, A. G. Brown, Jr., M. D., and J. McCaw Tompkins, M. D.; Physical Diagnosis—J. Garnett Nelson, M. A., M. D., and Associate Professor of Clinical Medicine, Douglas VanderHoof, M. D.

Pediatrics: Professor—McGuire Newton,

M. D.; Associate Professor—St. George T. Grinnan, M. D.

Neurology and Psychiatry: Professor of Neurology and Psychiatry—Beverly R. Tucker, M. D.; Professor of Clinical Neurology and Psychiatry—J. Allison Hodges, M. D.; Associate Professor of Neurology and Psychiatry—Roshier W. Miller, M. D.; Ph. G.

Dermatology and Syphilis:—Professor—E. P. McGavock, M. D.

General Surgery: Professor of Surgery—George Ben Johnston, M. D.; Professors of Clinical Surgery—Stuart McGuire, M. D., and Hugh M. Taylor, M. D.; Associate Professors of Surgery—Practice of Surgery, G. Paul La Roque, M. D.; Principles of Surgery, James W. Henson, M. D.; Operative Surgery, A. Murat Willis, M. D.; Minor Surgery, William W. Dunn, M. D.; Clinical Surgery, W. Lowndes Peple, M. D.; Orthopedic Surgery, William P. Mathews, M. D.

Genito-Urinary Surgery: Professor—Lewis C. Bosher, M. D.; Associate Professor—R. C. Bryan, M. D.

Ophthalmology, Otology, Rhinology and Laryngology: Professor of Ophthalmology—Joseph A. White, A. M., M. D.; Professor of Otology, Rhinology and Laryngology—John Dunn, M. A., M. D.; Associate Professors—Ophthalmology, R. H. Wright, M. D.; Otology and Rhinology, C. M. Miller, M. D.; and Laryngology, S. C. Bowen, M. D.

Obstetrics: Professor—John F. Winn, M. D.; Associate Professor—Greer Baughman, M. D.

Gynecology: Professor—Chas. R. Robins, M. D.; Associate Professor—Stuart N. Michaux, M. D.

DEPARTMENT OF PHARMACY.

Pharmacy: Professor—A. Bolenbaugh, B. Sc.

Chemistry: Professor—Wortley F. Rudd, M. A., Ph. B.

Botany and Pharmacognosy: Professor—(To be supplied).

Materia Medica and Toxicology: Professor—H. G. Latimer, Ph. G., M. D.

Bacteriology and Hygiene: Professor—A. H. Straus, B. S.

Physiology and First Aid: Professor—E. C. L. Miller, M. D.

DEPARTMENT OF DENTISTRY..

Anatomy: Professor—W. G. Christian, M. D.

Histology and Embryology: Professor—W. A. Shepherd, M. D.

Chemistry: Professor—Wortley F. Rudd, M. A., Ph. B.

Physiology: Professor—Alfred L. Gray, M. D.

Principles of Surgery: Professor—James W. Henson, M. D.

Physiologic Chemistry: Professor—E. C. L. Miller, M. D.

Bacteriology: Professor—A. H. Straus, B. S.

Clinical Dentistry: Professor—R. L. Simpson, A. M., D. D. S.

Operative Dentistry: Professor—Hugh G. Russell, D. D. S.

Prosthetic Dentistry: Professor—William J. Cowardin, M. D., D. D. S.

Crown and Bridge Work and Metallurgy: Professor—J. Mortimer Hughes, D. D. S.

Orthodontia: Professor—J. A. Cameron Hoggan, D. D. S.

Dental Pathology and Therapeutics: Professor—(To be supplied).

Dental Materia Medica: Associate Professor—R. H. Jefferies, D. D. S.

Oral Surgery and Anesthesia: Professor—(To be supplied); Associate Professor—T. H. Scales, D. D. S.

Ethics, Jurisprudence, Economics and Metallurgy: Professor—P. B. Walton, D. D. S.

In addition to the Professorships and Associate Professorships named above, other positions will be filled by the Faculty, subject to the approval of the Board.

The new Faculty has held one meeting since election, when temporary organization was effected, Dr. Stuart McGuire being made Chairman, and Dr. Manfred Call, Secretary.

The Friedmann Treatment for Tuberculosis.

Although the Virginia Health Department will do its utmost to bring Dr. Friedmann to Virginia and to give his cure a fair test, we believe the views expressed in *Public Health Reports* for March 21, 1913, expresses the feeling of the Department officials as well as all right thinking physicians on this subject at the pres-

ent time. We herewith take the liberty of quoting this report in full.

"On March 8th, the Secretary of the Treasury, on the recommendation of the Surgeon General of the Public Health Service, caused a board of medical officers to be detailed to make a thorough investigation of Dr. Friedmann's alleged cure for tuberculosis.

These officers proceeded immediately to New York and arranged with Dr. Friedmann for demonstrations of his remedy upon persons suffering from tuberculosis. These demonstrations are being carried on in certain New York hospitals through the courtesy of their respective authorities, and will be continued until sufficient information has been obtained for the forming of an opinion as to the merits of the treatment.

Dr. Friedmann has submitted to the board a culture of the bacteria which he states are used in his method of treatment. In addition to the observation of persons under treatment by Dr. Friedmann, the board of officers will make experiments to ascertain whether this culture is, as Dr. Friedmann claims, harmless to warm-blooded animals.

Considerable time will necessarily be required to carry out these investigations. The work will be carried on as rapidly as possible.

In the meantime the public is informed of the inadvisability of tuberculous patients traveling long distances in the hope of receiving the treatment. Those to whom it is administered for demonstration purposes are selected by the hospital authorities from among their patients; the number selected constituting only a small proportion of available volunteers.

Certain statements purporting to be expressions of the opinions of the board of officers of the Public Health Service carrying on the investigation have appeared in the newspapers. These officers have expressed no opinion and will not be in position to do so until the work has advanced sufficiently far to warrant some conclusion in regard to Dr. Friedmann's treatment."

The South Piedmont (Va.) Medical Society

Will hold its next regular meeting in Danville, April 15, Dr. H. S. Belt, of South Boston, presiding. Dr. George A. Stover, also of South Boston, is secretary of this society. A number of interesting papers will be read and the annual election of officers will be held.

An English-Speaking Conference on the Prevention of Infant Mortality

Will be held in Caxton Hall, Westminster, London, August 4th and 5th. The meetings will be held under the auspices of the (British) National Association for the Prevention of Infant Mortality and The Welfare of Infancy under the Patronage of the King and Queen, and will convene immediately preceding the opening of the International Medical Congress.

A tentative program issued by the Committee, indicates that the papers will consist largely of medical opinion. The subjects treated will be: The responsibility of central and local authorities in infant and child hygiene; the administrative control of the milk supply; the necessity for special education in infant hygiene; medical problems in infant nutrition, and ante-natal hygiene.

The President of the Conference will be the Hon. John Burns, M. P., President for the Local Government Board. The chairman of the English Executive Committee is Sir Thomas Barlow and the Secretary, Miss J. Halford, 4 Tavistock Square, London, W. C.

Dr. Henry L. Coit, Chairman, 277 Mt. Prospect Avenue, Newark, N. J., and Dr. Philip Van Ingen, Secretary, 125 East 71st Street, New York City, of the American Committee, in charge of the part to be taken by the United States and Canada, will furnish information to those desiring to attend the conference.

Dr. Hodges Honored.

Dr. J. Allison Hodges, of this city, has been invited to deliver the address on Medicine, before the South Carolina Medical Association, which meets at Rock Hill, S. C., April 16-17.

The Fly Fight on in Norfolk, Va.

The Department of Health of Norfolk, believing that the fifty per cent decrease in typhoid fever in that city last year as compared with previous years was largely due to the successful fight waged against the fly, has already instituted warfare against that pest by requiring the annual cleaning of all premises in the city during April, to be followed by an inspection after expiration of time allowed. Where desired, formaldehyde will be furnished free for the extermination of the flies, with full directions for use.

In three weeks last year, 105 children in Norfolk turned in six million six hundred and

twenty-seven thousand flies. The Department is aiming this year to prevent the breeding of flies by maintaining clean yards, garbage and trash cans.

First Open Air School in Richmond a Success.

The first open air school, opened in Richmond seven weeks ago, has been such an apparent success, that it is now contemplated by the City School Board to extend this system to schools in various sections of the city as soon as possible. Most of the credit for this good work is due to Dr. N. Thomas Ennett, medical director of schools. In this school, the conservation of health is the first essential, the amount of work to be accomplished by the children being of secondary consideration. The record for the first six weeks shows an average gain in weight of one pound, as well as improved temperature and pulse conditions, and a more healthy coloring of its twenty students.

Changes in Virginia of U. S. Navy Medical Corps.

Surgeon J. A. Murphy, from Naval Training Station, Great Lakes, Ill., April 15, and to Navy Yard, Norfolk, Va.;

Asst. Surgeon D. G. Allen, from Naval Recruiting Station, Richmond, Va., to continue treatment, Naval Hospital, Washington, D. C.; and

Asst. Surgeon W. C. Lyon, Medical Reserve Corps, from Naval Medical School, Washington, D. C., to Naval Recruiting Station, Richmond, Va.

Location for a Good Doctor.

Mr. H. F. Jones, Burgess Store, Northumberland County, Va., wishes to communicate with a doctor who would consider locating in that community. The former physician at that place recently died leaving a lucrative country practice.

The American Association of Orificial Surgeons

Will hold their spring clinic in the Surgical Amphitheatre of Hering Medical College, corner of Wood and York Streets, Chicago, Ill., April 23-6. Dr. E. H. Pratt and assistants will operate on clinical patients, demonstrating the fundamental principles of Orificial Surgery as applied in the treatment of chronic diseases, and as an adjunct to major surgery in general.

On April 26th, the last day of the clinic, there will be a demonstration of other therapeutic measures which have been recently introduced to the medical profession, including abdominal calisthenics, manual therapeutics, high frequency treatment of internal organs, spondylotherapy and new hydro-therapeutic measures. These measures will be introduced and demonstrated not as curative measures within themselves alone, but as adjuncts to the ordinary armamentarium of the physician.

Tuition to this clinical course is free to all practising physicians, medical students and nurses. Physicians are invited to bring clinical cases for operation. No operating fee will be charged. Excellent hospital accommodations will be provided. Opportunity will be presented for the physicians bringing clinical cases to assist personally in the operation.

The clinic headquarters will be the Hotel La Salle. For further information address the Secretary, W. A. Guild, M. D., Des Moines, Iowa.

Married—

Dr. Rigdon Osmond Dees and Miss Helen Hazel Groome, both of Greensboro, North Carolina, on March the 15th.

A Conference for Education in the South

Will be held in Richmond, Va., April 16-18. Separate meetings of the various sections will be held Wednesday, the 16th, and all sections will come together in conference Thursday and Friday. Everybody is urged to take part. Executive officers are Robert C. Ogden, New York, president, and A. P. Bourland, Washington, D. C., secretary.

The Panama-Pacific International Exposition.

At this Exposition to be held in San Francisco, February 20—December 4, 1915, inclusive, it is planned to display in a most comprehensive way the achievements and activities of mankind during the last decade. In the domain of Liberal Arts, it is hoped there will be a display in Medicine and Surgery, showing the wonderful developments in those branches. The mechanical side of surgery will be represented by a collection of instruments and appliances, and there will be shown the most intelligent modern methods employed in the prevention and mitigation of the ills which beset mankind.

Theodore Hardee, who was prominently con-

nected with the St. Louis World's Fair of 1904, has been appointed chief of the Department of Liberal Arts, and will take pleasure in furnishing information to prospective exhibitors.

Hookworm Dispensaries

Will be opened in three counties in this State, beginning April 15. These dispensaries will be located in Southwest, Piedmont and Northern Virginia, and as heretofore, will be held only in those counties which make an appropriation for the work and formally invite the State Board of Health to operate dispensaries. A trained physician and skilled microscopist with ample equipment and medicine are in charge of each dispensary, and will make free examinations and will dispense free treatment to those who are found infected. More than twenty thousand persons were examined in the dispensaries of this State during last season.

Typhoid Vaccination.

In view of the remarkable results achieved in army and navy by typhoid vaccination, the war department contemplates urging the general use of this vaccine in all militia organizations. In a circular sent to the adjutant generals of the various States, this prophylactic measure was extolled, and the suggestion was made that militiamen be urged to submit voluntarily to the vaccination. Records for last year show only eighteen cases of typhoid in United States Army, six being among the immunized.

A Graduate Nurse is Wanted as Hospital Superintendent

Of the American Hospital for Women and Children, Madura, South India. Qualifications are a strong constitution, good education, first-class hospital record, ability to learn language, qualities of leadership and deep spiritual life. Mr. Wilbert Smith, 600 Lexington Av., New York City, will be glad to furnish information of this and similar openings in other lands.

For Sale—

Urethral instruments. First check for \$30 takes lot, or will sell separately. Kollman's long, straight anterior urethral dilator; Kollman's curved, anterior and posterior urethral dilator; Otis-Wyeth's curved urethrotome and dilator with three tips. Instruments cost \$71. Guaranteed in excellent condition or money back. Address, Dr. T. H. M., Goshen, Va.—(Adv.)

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Original Communications.

GRAVE KIDNEY LESIONS WITH VESICAL SYMPTOMS ONLY.*

By H. A. FOWLER, M. D., Washington, D. C.
Secretary American Urological Association.

That a patient with a grave lesion of the kidney or ureter may present absolutely no symptoms referable to the kidney itself is well known to us all. It is also well known that many of these patients present marked symptoms which, however, are referred entirely to the bladder. These cases of grave renal disease with vesical symptoms only constitute a definite and well-recognized group. During the past year in the course of the examination of a considerable number of patients with serious renal and ureteral disease I have been greatly impressed with the relative frequency of such cases. I am convinced, moreover, from my own experience that many times the actual condition in the kidney or ureter is overlooked or neglected and the diagnosis of "cystitis" is incorrectly made, based upon the predominant symptoms presented and the urinary changes observed.

It is not an uncommon experience for the genito-urinary surgeon to be asked to examine a patient for a suspected stone in the bladder and to find that the condition is really one of tuberculosis of the kidney, calculous pyelitis, or ureteral calculus. The symptoms may be entirely vesical and quite characteristic of bladder stone, but the trouble is at a higher level in the urinary tract. These cases occur so frequently in practice that I thought it might be interesting to refer to a few more or less typical examples which have come under observation and to comment briefly on the differential diagnosis.

The first case is that of a man, aged 29

years, who was referred to me by Dr. Henry P. Parker in September, 1908. He complained of pain in the end of the urethra, pus in the urine, and fever. His trouble began three months before with a sudden onset of fever, the temperature rising to 104. The fever continued for ten days during which time he took very large doses of quinine. The fever recurred in twenty-one days and persisted for another period of ten days since which time his temperature has remained about one degree above the normal. With this recurrence he first noticed burning at the end of the urethra, lasting for some time after urination. He noted that the urine was cloudy and had a foul odor. He never noticed blood in the urine and never passed a stone. At times the burning after urination was referred along the urethra and in the perineum. Frequency and urgency of urination was one of the first symptoms noticed and at times has been marked. There has been no other urinary disturbance, and he has never had pain in the kidney region or along the course of the ureters.

Examination.—The patient is a slight built young man, rather anaemic. He has a slight fever. The urine is uniformly turbid and contains myriads of bacilli and numerous pus cells. No red cells were seen. Rectal examination was negative.

Cystoscopy.—The bladder is washed clear with ease. The anterior wall is normal. The base has a greyish, granular appearance and the vessels are indistinct. Numerous flakes of pus are seen adhering to the bladder wall behind the trigone. The left ureteral opening is normal and functioning normally. The right orifice seems smaller than normal, wizened, and the mucous membrane about it is absolutely white and free from vessels. This side of the trigone is seen to contract, but nothing was seen to escape from it at first. On making pressure over the right kidney a very thin white thread of

*Read before the Medical Society of Northern Virginia and the District of Columbia, November 20, 1912.

muco-pus was seen to escape, followed by a considerable gush of turbid fluid sufficient to obscure the field. This examination left no doubt as to the seat of the trouble in the right kidney or ureter. An X-ray examination was made by Dr. Dunlop, who reported a stone in the right ureter with the kidney negative.

This diagnosis was confirmed later by operation when I removed a small calculus from the ureter at a point about four inches below the juncture of the pelvis and ureter. He has since remained free from symptoms.

Here is a patient with a sudden onset of fever with associated symptoms referable to the urinary apparatus, but not sufficient to attract particular attention.

There were no symptoms referable to the kidney or ureter either at the beginning or during the course of his trouble. The condition of the urine, the presence of pus and bacteria, was apparently overlooked and he was treated for several months for malaria. The discovery of the pyuria by Dr. Parker and the appreciation of its significance and its possible relation to the fever finally led to a more detailed examination, with the result that the cause of his trouble was located in the ureter and the proper treatment applied.

There are several very important and practical points which are emphasized by this observation. These may be summarized as follows:

1. A calculus of considerable size may remain for some time (several months) in the ureter without producing any localizing symptoms which will attract attention to its presence.

2. The local symptoms produced by a ureteral stone of considerable size may be relatively slight and referred entirely to the bladder and urethra. In other words, a stone in the ureter may reproduce all the classical symptoms of stone in the bladder. This point is too often overlooked in considering the differential diagnosis in cases of urinary calculus disease.

3. The examination of the urine for the presence of pus in cases of obscure fever should never be neglected. The temperature in such cases may be due to the presence of pus under pressure somewhere in the urinary tract, and there may be no other signs or symptoms of its presence or indication of its location.

4. As a corollary to the last point we may add that a persistent pyuria which resists local treatment to the bladder and urethra should arouse

our suspicion that it may be renal in origin. And further examination should be made to determine definitely the origin of the pus and the underlying cause which produces it.

The second case is that of a colored man, aged 39 years, who was admitted to Freedmen's Hospital complaining of pus in the urine, fever, loss in weight, and shortness of breath. His trouble began two years before with frequent urination and tenesmus. The onset was sudden. About two weeks after the development of the frequency and tenesmus he states he did have a dull aching in the right lumbar region, but this was so slight as to attract little attention and was overshadowed by the more predominant bladder symptoms. Later chills and fever developed, and there was a gradual loss in weight. The chills were thought to be due to malarial fever, for which he was treated without benefit. Later when the pyuria was discovered he was treated vigorously for cystitis for a long time without relief. It was with the diagnosis of cystitis that he was admitted to the hospital. At this time he was in desperate condition. He had a septic temperature reaching 101, a rapid pulse, he was emaciated, the sight of food was nauseating, and he had shortness of breath.

Cystoscopic examination showed a right-sided pyonephrosis. The urine contained a large amount of albumin, and granular and hyaline casts were numerous. No tubercle bacilli could be found and the X-ray examination for stone was negative. A nephrotomy was considered absolutely necessary as the only means of saving his life, but his condition was so desperate as to make any operative interference extremely hazardous. The kidney was rapidly drained. He left the hospital one month after admission in very poor general condition and with a discharging sinus.

As this case presents some unusually interesting features a few brief notes on the post-operative history are added. Several weeks after discharge from the hospital I saw him in his home. He was bedridden, he was taking little nourishment, he was emaciated, and his feet and legs were greatly swollen. The sinus was still discharging freely. It was felt that he could not last much longer and the family was so informed. This information was conveyed to the patient. He promptly began to take nourishment well, and to improve rapidly, with the result that in a few weeks he was up and about. At

present he *looks* perfectly well, and is building up a lucrative business as a chiropodist. I have tested his total renal function on several occasions during the past year, using phloridzin, indigo-carmin, and phthalein. Each test has shown a renal function depressed to the last degree. For example, the phthalein excreted in two hours following its appearance was only seven per cent. In spite of this the patient *appears* to be in perfect health.

Here again is a patient with a grave renal lesion with the predominant symptoms entirely vesical, and treated for cystitis for a long time without the real cause of his trouble being suspected. The employment of very simple means of differential diagnosis would have revealed at once the renal origin of the pyuria and led to the application of appropriate treatment.

Among the various diseases of the kidney associated with vesical symptoms only, renal tuberculosis easily stands first. As a result of the extensive investigations of this disease in recent years we have learned not only that tuberculosis of the upper urinary tract is usually primary in the kidneys and is usually unilateral in its onset, but that the condition may be present for a considerable time and produce advanced changes in the affected organ without giving rise to any symptoms whatever on the part of the kidney. Very often the first and only symptom of the disease is the vesical irritability—frequent urination, tenesmus, burning, which may be due either to extension of the disease to the bladder, or to reflex from the pelvis of the kidney without actual involvement of the bladder. In renal tuberculosis, then, particularly in its early stages, or later when the vesical symptoms are predominant, and localizing symptoms are absent we have to be on our guard to avoid overlooking the actual condition and condemning the patient to a long period of worse than useless therapy. From a considerable number of cases of this kind I have selected one recently under observation which will illustrate our point very well.

A young man of 19 years, seen in consultation with Dr. Moore, gave the following history: Onset three years ago with frequent urination and burning in the perineum and along the urethra. He denies all venereal infection. This frequency has continued ever since, but has been much more marked at times. About one year ago he went to Arkansas, thinking the change

would improve his general health, which was considerably below normal. For a time the frequency and irritation following urination was not nearly so marked, the improvement being attributed by the patient to drinking large quantities of sulphur spring water. His general condition, however, did not improve, and about three weeks before coming under observation he became too ill to continue work and was forced to take to his bed. He developed a fever of the septic type and rapidly grew worse. He was then brought to Washington for treatment. He had not consulted a physician until he was forced to give up and go to bed.

On admission to the hospital he had a temperature of 102 degrees. His general condition was very bad. He was emaciated, very weak, and manifestly septic. Urination was frequent and so painful that morphia had to be given. The urine was very cloudy and full of pus and numerous red cells. No tubercle bacilli could be found, but these had been found by his physician in Arkansas. There was general abdominal tenderness and both recti were rigid and board-like. Palpation of the kidneys was not satisfactory on account of the muscular rigidity. There had never been the slightest pain in either kidney region or along the ureters. It was quite clear from his condition, however, that one or both of his kidneys were involved, but there was absolutely nothing in the history or the local examination to indicate which kidney was affected.

A cystoscopy was done under general anaesthesia. This was very difficult owing to the extreme irritability of the bladder due to ulceration and the constant clouding of the field with pus and blood. Finally, after exercising a good deal of patience and perseverance we made out an opening in the bladder wall in the region of the right ureter. A catheter was introduced and passed to the pelvis of the kidney. Very foul purulent urine was obtained from the right kidney. The left ureteral opening could not be found, even after prolonged search. Operation was decided upon as the only means of offering relief to a condition already extremely desperate.

On exposing the kidney through the usual extra-peritoneal incision it was found so extensively riddled with abscesses that a nephrectomy was the only justifiable procedure to adopt in spite of the fact that we did not know exactly

the condition of the other kidney. The excised kidney showed on section typical multiple tuberculous abscesses involving the pyramids and destroying nearly all the parenchyma of the organ. This patient recovered from the operation and the remaining kidney secreted a normal quantity of urine. He continued to improve for several weeks, but his temperature remained elevated. Shortly after removal to his home he developed acute indigestion, his remaining kidney shut down, and he died suddenly about two months after the operation.

The history in this case is quite typical of many of these cases of renal tuberculosis in that the first symptoms to attract attention are referable to the bladder, and very often throughout the course of the disease there is no pain in the kidney itself. Evidently so long as there is free drainage through the ureter there is no distention of the pelvis or calyces and consequently no pain. Our private records and those of the clinic at Freedmen's Hospital contain many similar histories.

It will be found on going over these cases of grave renal lesion with vesical symptoms only that very often these patients have been treated for long periods for cystitis under the impression that the trouble producing the symptoms was located in the bladder. This is quite natural, since the clinical picture is often quite characteristic of cystitis. In others, stone in the bladder is suspected, and when the searcher fails to find a stone they are put on vesical irrigation and other local treatment without benefit. It is, of course, of the greatest importance that the actual condition, the renal origin of the trouble, be recognized early in order not only to apply proper treatment for its relief, but also to avoid subjecting these patients, sometimes for months and even years, to a course of treatment worse than useless.

How is this to be done? How are we to avoid these errors in diagnosis? It occurs to me that our attitude of mind in reference to the frequency of renal infection must be radically changed as a result of the experience gained in the study of infections of the urinary tract during the past few years by the employment of instruments of precision and the methods of exact diagnosis. We have learned that primary cystitis is relatively uncommon except as a complication of urinary obstruction, a foreign body in the bladder, or acute inflammation of

the posterior urethra. It is not infrequently secondary to infection of the renal pelvis.

In any given case of total pyuria, that is, where there is uniform clouding due to pus of the urine voided in three glasses, we should always suspect the renal origin of the pus until an adequate examination demonstrates that the kidneys are healthy. This is especially true in the absence of stricture, prostatic hypertrophy, or retention due to a cord lesion, and where we are certain that there is no stone or foreign body in the bladder. Cases of total pyuria depending upon acute inflammation of the posterior urethra are usually easily recognized. It is to be remembered that an acid total pyuria without infection is pathognomonic of tuberculosis.

The only means we have of definitely determining the renal origin of the pus in any case of pyuria is the cystoscope and, when necessary, the ureter catheter. But unfortunately this means of establishing the diagnosis definitely in every case is not always available for various reasons. In many cases we can definitely demonstrate the renal origin of the pus by the simple irrigation of the bladder through a catheter. This test which can be made by any one will often give very accurate information. It is made as follows: Everything is made ready for catheterization. The patient empties his bladder as completely as possible. He is at once put on the table and catheterized. The amount of residual urine, if any, is carefully noted. With a clear solution, sterile water, boric acid solution, two per cent., or bichloride one to eighty thousand strength, we fill the bladder comfortably and then allow this solution to flow out through the catheter into a clean glass. The turbidity of this irrigation is carefully noted. This washing out of the bladder is continued until the washings return clear, and we note the number of times this is necessary. Where the bladder is healthy and the voided urine contains much pus, it will be found that it requires only one or two flushings before the washings return clear. In other words, the bladder is easily washed clear. If there is cystitis and the pus comes in part or entirely from the bladder it will require a large quantity of solution and many flushings to clear the bladder and free it from sediment.

Where there is marked cystitis this test will show only that there is infection of the bladder; it gives us no information as to whether or not

the kidneys are also involved. In such cases we must have recourse to more accurate means of examining the kidneys, such as the cystoscope and the ureter catheter. However, many times during the preliminary bladder irrigation preceding cystoscopy in the class of cases we are now discussing I have noted the results of this simple test and have been greatly impressed with its simplicity and accuracy.

The three cases I have very briefly reported were all long standing, and therefore extreme examples of the group of cases under discussion. They serve very well to illustrate the importance of an early correct diagnosis in order that appropriate treatment may be applied before irreparable damage to the kidneys has occurred. It is a fact that these patients are seen first by the general practitioner upon whom rests the burden of recognizing the condition early and instituting proper treatment. It is for this reason that I have presumed to bring this subject before you for discussion at this time.

The Cumberland.

ASPHYXIA NEONATORUM.

By CHAS. W. DOUGHTIE, M. D., Norfolk, Va.

Asphyxia of the new born may be broadly defined as a condition in which there is a defective aeration of the blood of the infant, with an absence or suspension of the function of respiration.

Causes.—The causes may be divided into intra-uterine and extra-uterine. Any condition which tends to diminish or shut off the blood supply from the child, through either the cord or the placenta, becomes at once an etiological factor. Hence, undue pressure on the cord or the placenta or the premature separation of the latter may be regarded as the most natural causes. Tetanoid contractions of the uterus, in which the muscular action is continuous, will arrest the placental circulation.

The so-called "vaginal birth," which develops in prolonged breech deliveries, is frequently a cause, and a very serious one when encountered. In this condition the circulation is interrupted, while the head is in the birth canal and remote from atmospheric air. Syphilis of the cord with its narrowing of the lumen of the umbilical vessels may be a cause. Suppression of oxygen

may take place through a deficiency of the red blood cells in the blood of the mother, as a result of hemorrhage or possibly to some anomaly in the development of the fœtus. Eclampsia in the mother, with its coincident tetanoid muscular spasms as previously alluded to, and anything which impairs the respiratory capacity or inhibits same in the mother, will have the same tendency. Drugs administered to the mother may be regarded as a possible causative factor, though personally I do not believe that they are responsible to the degree which some would lead us to think them. In other words, while I quite agree that it is possible to asphyxiate the unborn child by administering such drugs as morphia, chloral, ether and chloroform, I hold that large doses must be administered to the mother before any serious ill-effects are experienced by the fœtus *in utero*, and if so, only in a degree which is readily overcome by ordinary methods, when the child is born. After the administration of large doses of morphia or chloral and during the prolonged or heroic administration of ether or chloroform, the fœtus should be carefully watched for any untoward effects, as evidenced by undue acceleration or feebleness of the heart sounds. A cause which may be regarded as of serious import, is prolonged or unusual pressure on the fœtal head during the process of delivery, as a result of disparity between the size of the fœtal head and the bony pelvis, or the use of forceps—at times skilled, but most likely the unskilled use of same.

Another cause may be found in the aspiration of liquor amnion, blood, mucus and other debris. This is particularly liable to occur in prolonged breech deliveries, in which the breech is born sometime before the head is extracted. When the body is projected into the air, which is of a different temperature and the circulation is cut off by the pressure, an attempt at respiration takes place and the child is not only asphyxiated by the surcharge of carbon dioxide, but is actually drowned as well. In this class of cases therefore, we have to reckon with two serious conditions, either of which is sufficient to kill.

The finding of the lungs filled with fluids suggests the oft-repeated question, "Does the child inspire *in utero*?" Perhaps, and most likely, then, the above is the best explanation. But since this condition is also found in vertex deliveries, I will add, that the prolongation of

*Read before the Obstetric Section of the Norfolk County Medical Society.

a vertex delivery, while less liable, is still susceptible of producing a similar condition, when the integument covering the head is exposed for some time to the air and unprotected, before the nose and mouth emerge.

Pathology.—The blood suffers the first pathological change. The presence of carbon dioxide in the blood in ordinary quantities stimulates the centre in the medulla to continue the respiratory function, while an excess over-stimulates and ultimately paralyzes. The excess of carbon dioxide causes the blood to remain fluid and of a dark color. The right heart is engorged; the large thoracic vessels, the sinuses of the dura and the hepatic vessels are in a state of distention. Extravasations frequently accompany the distention, especially in the viscera, and œdema has been observed in the pia mater, scrotum, and the cord. Another set of changes are found in the thoracic organs, where premature respiration has occurred. The trachea, tubes and lungs are filled with amniotic fluid, blood, mucus and debris. Edgar asserts that the latter demonstrates that intra-uterine respiration has occurred. The fluids may not be present, however, when a membrane has been interposed or when the face is in close contact with the maternal parts. The stomach may contain meconium. Pulmonary ecchymoses are less frequent in pre-natal than in post-natal asphyxia. General atelectasis may be found in children who have been reanimated. The pathological changes found in the intra-uterine form are analogous to those found in ordinary suffocation.

Prognosis.—The prognosis depends upon the cause, the degree, whether the asphyxia took place *in utero*, and largely upon the persistent, intelligent and sustained effort of the attending obstetrician.

Of course, those cases which are due to trauma of the brain, with hemorrhage into same, practically all die. However, if the hemorrhage takes place upon the convexity of the brain, the child lives longer but is nearly always mentally defective.

The mild cases, when there is no organic cause, should all recover if intelligently handled. Much depends upon the care of the child after resuscitation has been accomplished.

To Determine the Grade of Asphyxia.—Introduce the finger into the throat to clear out

mucus and the like. If there is a spasm of the palate, the prognosis may be regarded as good. If the reflex is absent, the prognosis is bad, though the case should not be regarded as hopeless. I am now convinced that no case should be regarded as hopeless till at least forty minutes of persistent and systematic effort at resuscitation have been used to no avail.

Symptoms.—When a normal child is born, naturally it begins to breathe, and usually to cry lustily. It opens its eyes, contorts its face, moves its extremities and the skin assumes a rosy hue.

The asphyxiated child presents one of two conditions altogether different from the above. The child is either large and robust, the skin is of a livid color, and without doubt it is a strong child, the stenic type; or it is pale, wan and anæmic, the asthenic type.

In the milder forms there is a slight effort at respiration; in the more pronounced forms there is no effort at respiration and the child is limp and lifeless—to all appearances dead.

In the more severe types there is an absence of pulsation in the cord, and if the heart beats at all, it is imperceptible and unrecognizable by palpation and auscultation. Until recently, I have always interpreted the last mentioned symptom to mean that further efforts at resuscitation were unnecessary, as I believed the child to be dead. I am now convinced that I was wrong.

In the more severe forms there is an absence of muscular tone and reflexes are absent.

Diagnosis.—It is important to know whether the asphyxia took place from causes intra-uterine or from causes extra-uterine, but no time should be lost in trying to determine this point.

A careful observation of the entire labor will give the obstetrician a fairly accurate working knowledge as to the probable causes acting to produce the asphyxia,—slow dilatation of the cervix with exaggerated uterine contractions, slow labor, instruments, partial separation of the placenta prematurely, breech presentations, premature birth, etc.

Treatment.—The average doctor who practices midwifery knows very little of the application of the ordinary methods of resuscitation which are in common use; that is, he possesses a decided lack of familiarity with the technique of the various procedures and the selection of

the method which is probably best suited to the individual case.

Prevention may be summed up in the following, so far, perhaps, as we are able to prevent: Use anesthesia sparingly. Do not begin its use too early, nor extend its use over too long a period. If the cervix is slow to dilate and the pains are very hard, unless there is some positive contraindication, I believe that the administration of from 1-4 to 3-8 of a grain of morphia is good practice, inasmuch as the mother is saved much suffering, the contractions are less violent and the cervix readily softens. The damage to the child is diminished in two ways—the direct driving pressure is decreased and the exhaustion of the mother is lessened, and as a result the child suffers less ill effect because of these. Less general anesthesia is required. I have never observed any ill effects upon the child. The second stage of labor is greatly shortened in this class of patients, as the patient is prepared when she enters it. Then, too, forceps are less frequently required. One, however, should be able to discriminate as to the necessity and contraindications as well.

When forceps are used, one must first know that any attempt to apply them before the cervix is fully dilated is nothing short of criminal; that in using forceps, one should disregard any forceps having a narrow cephalic curve, such, for instance, as the Hodge instrument, which I was taught, at great length, to use. The pulls should be intermittent, so as to simulate the pains of labor, and there should be a release of the grip upon the head with each intermission. Keep the examining hand out of the vagina as the head approaches the outlet and keep a warm sterile pad over the vulva to forestall the premature reflex stimulation which might be occasioned by premature contact of the scalp integument with the atmospheric air, with its coincident gasp and insufflation of fluids into the lungs. Of course, the pad serves other purposes as well, which are obvious, and need not be mentioned here.

In the case of breech deliveries, have a table at hand, and upon it a basin each of hot and cold water, a pillow or something soft of a similar nature, sterile gauze or a clean soft cloth, towels or handkerchiefs, and one or two heavy clean Turkish towels (which should be kept warm), and a catheter. As the body is being

born, wrap it in a warm Turkish towel, so as to prevent as far as possible the shock induced by contact with the air, while the head is still in the parturient canal. The after-coming head should be delivered as quickly as possible. The obstetrician should, between pains, introduce two fingers into the vagina, as far as the malar bones of the child, to serve three purposes, viz.: To keep the head flexed, to make traction during pains, and to depress the floor of the vagina, so as to drain it of fluids and at the same time possibly establish a contact with the air should an attempt at respiration occur.

The mother should not be completely anesthetized during the delivery of a breech case, in order that she may assist in the delivery by her own efforts. She should be told of the presentation and made to understand that the viability of her offspring may depend largely upon her co-operation. The extraction may be aided by having an assistant massage the uterus and squeeze down on it, so as to stimulate contractions. When the child is delivered, if there is a mild asphyxia, the cord pulsating and the child blue (the stenic type), about all that is required is to grasp the feet firmly and suspend it head down. This procedure drains the throat and bronchial tubes of much of the fluid. I am in the habit of, almost immediately after the child is born, introducing my wrapped index finger into the pharynx and cleansing it of all blood and mucus. Respiration is established almost immediately.

A smart smack on the buttocks, the alternate sprinkling of the body with cold and warm water, or immersing the body alternately in warm and cold water, is a very serviceable procedure.

Preserving the body heat is of coincident importance. To do this, have an assistant provide a warm wrap or Turkish towel, and immediately wrap the child. When it is breathing well and regularly the child may be turned over to an assistant. I think it is well to lay the child on the right side for the first few hours after birth and invariably insist that it be done.

In every prolonged or difficult labor, suitable preparation, such as mentioned above, should be made in the event of a possible asphyxia. It has recently been advised by some one, whose identity I do not recall, that mild asphyxias may be greatly benefited by rapidly expelling the placenta and exposing the uterine surface

to the air. The object, of course, is the direct oxygenation of the fœtal blood. I have tried this method a few times, and in each instance the color of the child rapidly improved, as did the general condition; but each of the cases, I believe, would have responded to any of the other ordinary methods commonly in use, though perhaps not quite so quickly.

A valuable method is the one described by Dr. Byrd and modified by Dr. Dew, of New York, a description of which may be seen in Edgar's text-book. A modified Sylvester method is good, but possesses the disadvantage of requiring the services of an assistant, position, and the like.

Menendez reports that after trying the ordinary methods of resuscitation without success, he used faradism, the anode pole to the sternum and the cathode over the heart, with marvelous results.

Direct percussion over the heart is also advised.

Jardine advises the hypodermatic use of strychnia, grain 1-150, but cautions against the use of larger doses, since he has observed convulsions follow the use of 1-30 of a grain.

Shultze's method I regard as being at once the best of the manipulative methods when properly done, and I feel that it is worthy of reproduction. It is as follows: "The child lying upon its back is grasped by its shoulders, the open hands having been slipped beneath the head. The three last fingers remain extended in contact with the back while each index finger is inserted into the axilla, the thumbs lying upon and in front of the shoulders. When the child thus held is allowed to hang suspended, its entire weight rests upon the two fingers in the armpits. It is now swung forward and upward, the operator's hands going to the height of his own head, the pelvic end of the child rises above its head and falls slowly towards the operator by its own weight, flexion occurring in the lumbar region. The thumbs in front of the shoulders compress the chest while the hyperflexed lumbar vertebrae and pelvis compress the abdomen, and through it the thorax; finally the three last fingers on each side compress the thorax laterally. As a result of this manoeuver when properly done, aspirated secretions flow freely from the mouth. The distended heart also feels the compression, which

forces the blood into the arteries. The child is now swung back into its original position and supported entirely by the fingers in the axilla. The compression of the thumbs and the last three fingers is removed. The downward swing elevates the sternum and ribs while gravitation and the traction of the intestines depress the diaphragm. It is often possible to hear the rush of the air through the infant's glottis as it reaches the original position, although this can occur in a cadaver. The amplification of the thorax lowers the intra-cardiac pressure. This manoeuver should be performed ten to twelve times per minute. * * *"

Laborde's method consists in making gentle traction on the tongue, and might prove of service in stimulating, reflexly, the respiratory function. I do not approve of this method, inasmuch as pulling on the tongue of an adult is not a pleasant thing to contemplate, much less yanking on the tongue of an infant.

Insufflation.—Insufflation, in my judgment, is the most rational of all methods which have been suggested. It may be done through a small tracheal catheter, the index finger guiding it into the larynx. This cannot be taken lightly, as it is by no means a simple procedure. Frequently the arytenoid space is very small. It may be accomplished by using the bell of an ordinary stethoscope to cover the mouth, while the attendant blows through one of the small divergent tubes, at the same time stopping the other with a finger.

The particular method which I regard as being in every way superior to any and all other methods, in extreme cases, is the "mouth to mouth" process, with which every obstetrician should be perfectly familiar. No apparatus is required. It is, therefore, always immediately available. With this method I have been able to resuscitate three (possibly more) extreme cases, in which the various other methods had proved unsuccessful. In fact, only recently, I was in consultation and assisted in the delivery of a breech case in a primipara, the entire body and extremities of which were delivered fully twenty minutes before the head was finally extracted. After the attendant had exhausted himself and I, too, had spent time in an unsuccessful attempt, forceps were sent downstairs, sterilized, and subsequently applied to the after-coming head before it could be extracted. The

child I regarded as dead rather than asphyxiated, but I was especially anxious to save this particular child, and while an attempt seemed not to be warranted, I determined to make an effort. There had been no pulsation of the cord for fully twenty minutes; there was no evidence of a heart-beat upon palpation or auscultation, and there was a total absence of reflexes. All the ordinary methods were tried, but after about thirty minutes of unsuccessful efforts, the "mouth to mouth" method was tried. When fully forty minutes had elapsed (according to others present) a most impotent gasp became evident, which led me to proceed further. Shortly after the gasp, a feeble heart flicker was observed. At the end of about one hour the child was breathing with fair regularity, the color rapidly improved and the muscular tone was restored. With careful watching for several hours, the child became normal, and at the present time appears to be quite robust.

The method which I would recommend is as follows: When a child is born that is profoundly asphyxiated, the asthenic type, avoid trying the many ordinary methods. Suspend the child perpendicularly by the feet, wipe the blood and mucus from the mouth and throat. Wrap the child in something warm and lay it upon its back. Take a thin towel, clean cloth or several layers of gauze and place it over the child's entire face; place your mouth over the cloth or gauze at a point where it covers the mouth of the child and breathe deeply and slowly into the mouth of the child until the lungs are filled, as evidenced by the cessation of the crackling which is heard when the air vesicles are being distended. As the lungs are being distended with air, the blood, mucus and other fluid are forced out through the nostrils, and but for the gauze covering the entire face, this would be discharged into the insufflator's face. The gauze or cloth is then shifted to a clean place and the process repeated until respiration is established, when the function may easily be kept up by any of the simple methods previously referred to. Some advise that the chest be compressed after each insufflation, but this I believe to be unnecessary. The insufflation should be done, not too rapidly, but at about the rate of twelve to fifteen times each minute. If carefully done, there is little or no danger of rupturing the air vesicles. After res-

piration is well established, the child should be well greased, warmly wrapped and laid upon its right side in a basket, bureau drawer, or box, and placed in a warm but well-ventilated room and there carefully watched for several hours. No attempt to dress it should be made for several hours, and then it should be done in a warm room with great caution. It is important to see that the child cry frequently and lustily. If it fails to do so, we most likely have to deal with an atelectasis.

Mechanism and Chemistry.—I have been giving the mechanism and chemistry of the above method quite a little thought of late, and am herewith presenting a rearrangement of the theories which, so far as I am able to ascertain, are original. I believe that the *modus operandi* of the "mouth to mouth" method is essentially and primarily mechanical; chemically, irritant; and, finally, nervous, which, you will observe, is directly the reverse, according to the physiologists, of the normal respiratory function.

By insufflating the lungs under pressure, as the lungs are filled with air, the fluids which partially fill them are rapidly forced out by the process of displacement. When the fixed capacity of the chest is filled with the distended lungs, there is exerted a *direct* pressure upon the heart, which, post-mortem, has been shown to be distended with fluid blood. This direct pressure, if great enough and gentle enough, slowly empties the heart of its fluid blood by squeezing it on into the main arteries. With the expiration, the direct pressure is removed from the heart and a negative pressure exerted. With this negative pressure and the heart at this moment being in a state of collapse and partially, if not entirely empty, the pulmonary and aortic valves fall shut, thereby preventing a reflux, while at the same time there is exerted a pull on the large veins which empty into the heart, very much as observed when a collapsed rubber bulb is placed in a vessel of water. Sufficient time should be allowed for the proper refilling of the heart, therefore, between each of the insufflations. This completes the first mechanical cycle, while with each succeeding insufflation there is a reproduction of the cycle. It has been shown that carbon dioxide in ordinary quantities in the blood, when same is in motion, acts as the normal stimulus to the center of respiration, which is located in the me-

dulla; that an excess overstimulates and, as is the case with asphyxia, the over-stimulation may take place to the point of paralyzing the center.

With each insufflation, in addition to setting the current of blood to slowly circulating by the mechanical process already outlined, there takes place an attenuation of the carbon dioxide in the blood of the child by dilution and the substitution of oxygen through the insufflated breath of the resuscitator which, while likewise polluted with carbon dioxide, still possesses much unused oxygen when respired.

By the above process, we have the respiratory center in the medulla stimulated by having the natural stimulus (carbon dioxide) brought into direct contact, through the agency of the blood as the vehicle. This could not take place, except it were brought to it; the blood is the only vehicle in which it can travel; to travel, the blood must be set in motion and kept in motion until the stimulus is landed where it can perform its work of irritation, which must be direct. When the center is irritated, it responds by sending out the normal impulse and the only one of which it is capable, namely, the continuation of the function that is peculiar to itself and which was instituted primarily by the mechanical means employed.

Coincidentally, the heart responds to the repeated demands which are being made for a perpetuation of its function.

In summing up, there is no danger of rupturing the air vesicles if the insufflation is slowly and cautiously performed. The air vesicles being filled, there is no danger of atelectasis.

Admitting that the theories above referred to are correct, the lungs can not be so completely filled by any other process, nor would the positive pressure be of such an overwhelmingly convincing nature. The simplicity and the immediate availability makes the method at once desirable.

If the cloth is made to cover the entire face and one is careful to change the position between each insufflation, one's æsthetic nature should suffer no insult.

As to what effect the above process might have upon a patient who has been asphyxiated by chloroform, I cannot say, but arguing from the same process of reasoning, I should think it might prove serviceable if enough air could be forced into lungs to fill them completely, and thereby exert a similar positive pressure on the

heart. Of course, it would be necessary to have a very ample lung capacity if attempted by an individual. It has occurred to me that some apparatus, by means of which the degree of insufflation could be regulated, would be very useful, but all this is by way of parenthesis, since the real object of my paper is the discussion of asphyxia neonatorum. I would lay particular emphasis upon the mouth to mouth method of resuscitation and the importance of making a persistent and sustained effort before dismissing the case as hopeless.

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INFANT FEEDING.*

By ST. GEO. T. GRINNAN, M. D., Richmond, Va.

It is a proper or an improper nutriment which makes or mars the perfection of the coming generation. Nutrition is the most important factor in the immense mortality during the first year of life. The question whether a child shall be strong and robust or a weakling is often decided by its food during the first three months of life.

An infant during the first nine months of life spends most of its time sleeping and growing, and during this time the muscular effort is not great; it follows, therefore, that the diet of an infant should contain relatively more of the tissue builders, proteids and mineral, and relatively less of the energy producers, carbohydrates, than one finds in the food of the adult.

During the first nine months of life the human being is carnivorous. A violation of this law is followed by disease, especially when carbohydrates are too exclusively used. The usual result is scurvy, rickets, or some serious digestive disorder.

The interesting table compiled by Heuber calls attention to the great value of proteids and mineral salt in young children.

	Time by which Weight is Doubled in Days.	Proteids.	Ash.	Phosphoric	
				Lime.	Acid.
Human	180	1.0	0.2	0.032	0.047
Horse	60	2.0	0.4	0.124	0.131
Calf	47	3.5	0.7	0.160	0.197
Goat	19	4.3	0.8	0.210	0.322
Pig	18	5.9	...	.....	.....
Sheep	10	6.5	.9	0.272	0.412
Cat	9½	7.0	1.0	.....	.....
Dog	8	7.3	1.3	0.453	0.493
Rabbit	7	10.4	2.4	0.891	0.996

I believe that too little attention has been paid

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to mineral salt metabolism. Note in Heuber's table the large quantity of lime salt and phosphoric acid supplied to various kinds of young mammals.

The percentage of phosphoric acid supplied to young dogs in milk is ten times as great as that supplied to the human being when young. Mineral metabolism is now recognized as a very important factor in the use of breast milk. The fact that the percentage of these elements is small is the very reason for preserving these elements as found in breast milk.

"The loss in phosphorus is sixteen times as great with cow's milk as with woman's milk (rachitis). Human milk contains in addition to lecithin and nuclein more combined phosphorus than cow's milk.

"Of the total phosphoric acid in human milk 35 per cent. is in the form of lecithin. Of the total phosphoric acid in cow's milk 5 per cent. is in the form of lecithin. Of the total phosphoric acid in human milk 41 per cent is in the form of phosphocarnic acid. Of the total phosphoric acid in cow's milk 6 per cent is in the form of phosphocarnic acid." (See Siegfried, *Zeit. f. Physiol. Chem.*, Vol. XXII., p. 575, 1896, and Stoklassa, *Ibid.*, Vol. XXIII., p. 343, 1897.)

While salts do not of themselves act as producers of heat and tissue, their relation to these processes is such that one can no longer neglect them. Extracts of these salts do not serve the purpose. Extract the salts and the animals die. The salts must come into the body in organic union. Separate the salts and feed them separately and still the animals die.

It is the opinion of the Finkelstein school that the mineral salts play a large part in the disturbance of nutrition. It is generally accepted that many common diseases of infants have their origin in disturbed mineral salt metabolism. In cases which puzzle and baffle all efforts of control it is well to consider the capacity of mineral salts as electrically charged ions.

Dr. Raymond Hoobler (*Archiv. Pediat.*, March, 1912) cites two interesting cases of milk anaemia, the milk being poor in iron. The children, aged three years, were fed on such foods as contain a large per cent. of iron. All medication by the various iron preparations was stopped. The child was sent to the country and under the iron diet soon had rosy cheeks.

Œdema in infants is a condition quite common, independent of heart or kidney complication. The œdema in the majority of cases is caused by what the child is not being fed rather than by what the child is fed. Œdema in such cases or of such nature is commonly seen when an infant is taking barley water or whey. The addition of suitable food causes the œdema to disappear.

We see, therefore, that a study of infant feeding brings us to consider the caloric value of various foods used in infancy and early childhood. Experiments have established that on complete combustion one gramme of fat yields 9.3 calories, one gramme of protein yields 4.1 calories, one gramme of carbohydrate yields 4.1 calories. Using this as a basis we can compute the caloric value of all products which have been analyzed.

Using Koenig's table we know the caloric need for the various ages by very simple calculation. The caloric need for the various ages as given by him is as follows:

Child 1 to 2 years.....	800 calories
Child 6 to 10 years.....	1600 calories
Adult woman	2300 calories

While it is not practical to figure out the caloric need of every case we see, nevertheless there are many cases in which the caloric deficiency is the cause of the illness.

In this connection it is well to mention that "there is one factor which at times makes the infant of the tenement richer than the infant of the palace, that keeps alive the infant of the crowded slum while that of the immaculate scientific hospital dies." I refer to good mothering. Abraham Jacobi was compelled to resign from an infant asylum for explaining this to his board of lady directors.

The most common error in feeding during the second year is too frequent feeding. Five or six meals a day at this age, I believe, is a mistake; certainly after eighteen months four meals a day is sufficient.

During the first part of the second year vegetables become a valuable article of diet. The lack of iron in milk is supplied in vegetables.

Theoretically, an infant is born with enough iron stowed up in the liver to last one year. Valuable foods during the second year are spinach, green peas, carrots, string beans and asparagus tips. Too much milk should not be allowed dur-

ing the second year. It is a common error to give too much milk at this time. Two milk feedings a day after the second year are sufficient in the majority of cases. Most parents give too much cereal food. Children would have better teeth if they had more bread and crust and less mush.

A bowl of soup preceding a meal detracts from the meal in that the child is not liable to eat sufficient solid food. Uncooked fruit is certainly of more value than cooked fruit. Scraped pear or apple can be allowed to a child of eighteen months once or twice a day. It is of more value than prune juice, and excellent for constipation. When fruits are cooked the habit of using sugar should be avoided. Beware of the argument that the craving for sweets should be satisfied.

In regard to meat, cooking is very important; meat for children should be cooked rare, cut fine and mixed with potato or bread at first.

The question of boiling milk is one of great importance in infant feeding. The great question of tuberculosis is involved in this problem. It is now recognized that a considerable proportion of infantile tuberculosis is of the bovine type and originates through cow's milk as a food. It is clearly obvious that boiling the milk removes this danger. Where the milk is not of the very best certified variety boiling becomes very necessary.

PYORRHOEA ALVEOLARIS.*

By S. W. BUDD, M. D., Norfolk, Va.

There seems to be considerable difference of opinion amongst the profession as to the true nature of pyorrhœa alveolaris. The older textbooks and writers describe the condition as an inflammation of the periodontal or peridental membrane. Recently Medalia, Malassez and others have called attention to the fact that pyorrhœa alveolaris is a chronic alveolar osteomyelitis. These observers base their claim on new anatomical conceptions. They claim that the peridental membrane is not periosteum, but that it is nothing more or less than a circular ligament (the alveolar dental ligament) which keeps the tooth suspended in the alveolar cavity. They also state that the socket, instead of being made up of compact bone, is simply a thinned

out portion of the maxillary bones. If their conception is a correct one, we can readily see how the medullary portion of the maxillary bones is subject to insults and infection, and that the name chronic alveolar osteomyelitis more nearly describes the condition than pyorrhœa alveolaris.

Bacteriology of the Mouth.—The bacterial flora of the mouth is indeed a complex one. A number of pathogenic organisms are ever present in the secretions of the mouth. They, however, are much attenuated and grow there as saprophytes. So long as the individual presents a normal state of health they are perfectly harmless. The organisms most often found are streptococci, staphylococci, pneumococci, micrococcus catarrhalis, bacillus coli, the fusiform bacillus of Vincent's angina, spirochæte refringens, treponema microdentium and a host of others. They grow in an attenuated state, and animal inoculation shows them to possess little, if any, pathogenic powers.

Influence of Saliva on the Oral Bacteria.—The saliva, while possessing very slight antiseptic powers, undoubtedly aids in attenuating or keeping the oral bacteria in a state of low virulence. The saliva itself is sterile and cultures taken from the orifice of Stenson's duct as well as in the immediate region of the duct have proved to be sterile. Cultures elsewhere have shown abundant growth. In mouth breathers where the membranes are constantly parched, and individuals whose flow of saliva is scant, the oral bacteria show a higher degree of virulence than normal. In heavy drinkers and smokers and in people suffering from constitutional diseases the organisms sometimes are quite virulent.

Etiology.—Pyorrhœa alveolaris or chronic alveolar osteomyelitis is an infection pure and simple. The organisms producing the infection are ever present in the mouths of healthy individuals. No one specific organism has yet been described as the cause of the malady. Attempts to produce the disease by inoculating into the gums of healthy animals the organisms isolated from the disease have, so far, been unsuccessful. There must be other etiologic factors than the mere presence of organisms in the oral secretions. We must take into account mechanical causes, such as tartar and calculi, and also a hyper-susceptibility of the individual to oral

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For discussion, see page 45.

bacteria. People suffering with constitutional diseases, such as Bright's, diabetes, tuberculosis, syphilis, etc., are more prone to infection than people enjoying perfect health. In this type of individuals we would expect to find pyorrhœa alveolaris and statistics show that our contentions are well founded.

Bacteriology of Pyorrhœa Alveolaris.—A number of organisms have been isolated from patients suffering chronic alveolar osteo-myelitis. *Micrococcus catarrhalis* seems to be most constantly found. Other bacteria frequently met with are streptococci, staphylococci, pneumococci, spirilla, streptothrix bacillus coli, the fusiform bacillus of Vincent's angina, treponema microdentium, treponema macrodentium and others. Recently, Noguchi of the Rockefeller Institute has isolated the treponema mucosam from the pus of patients suffering with pyorrhœa alveolaris. He was able to produce a pus quite similar to the pus of pyorrhœa alveolaris by animal inoculation.

Eyre and Payne reported the bacteriological findings in 33 cases of chronic alveolar osteo-myelitis as follows: *Micrococcus catarrhalis*, 9 cases; *streptococcus pyogenes*, 7 cases; *staphylococcus aureus*, 2 cases; *streptococcus lanceolatus pneumoniae*, 4 cases; *micrococcus catarrhalis* and *streptococcus pyogenes* in combination, 11 cases.

"Simms reported the following in ten cases: *Micrococcus catarrhalis*, 10 cases; *staphylococcus aureus*, 2 cases; *staphylococcus albus*, 1 case *streptococcus brevis*, spirillum, and fusiform bacillus of Vincent's angina occurred in every case."

Immuno-Therapy.—Immuno-therapy aims to raise the resistance of the patient either by the use of vaccines or antitoxins. An immunity produced by the use of an antitoxin is known as passive immunity, while immunity induced by vaccines is called active immunity. So far, we have only two antitoxins, and as neither the bacillus of diphtheria, nor the bacillus of tetanus have yet been described as the causes of pyorrhœa alveolaris, we can put aside the question of passive immunity. Active immunity may be produced by attenuated live organisms or by killed cultures. In so much as our knowledge of individual susceptibility and the virulence of an organism is still hazy, I prefer the use of killed cultures.

When a toxin, a foreign proteid, or a cell, is

introduced into our system, our system forms an antitoxin or an antibody to destroy the toxin, the foreign proteid or the cell. Nature has so constituted us that instead of producing just sufficient antitoxin or antibodies to destroy the toxin, proteid or cell, there is an over-production of antitoxin and antibodies. Our resistance depends upon the amount of antitoxins and antibodies we have stowed away. If we are generously supplied with antitoxins and antibodies, we are not liable to infection and *vice versa*. I might state, in passing, that antitoxins and antibodies are specific for specific organisms.

Immuno-Therapy as Applied to Chronic Alveolar Osteo-Myelitis.—Chronic alveolar osteo-myelitis is a low grade infection. By low grade infection we mean an infection which is practically stationary, or one which progresses quite slowly. In other words, it is a condition in which an equilibrium has been established between the host and the infecting agent. The patient's constitution, however, suffers from the poisons elaborated at the seat of the infection. In such a condition there is little or no temperature reaction and the leucocyte count remains about normal. It is the type of infection that reacts best to vaccines.

In pyorrhœa alveolaris we have an infecting agent of low virulence and a host who does not seem able to cope with the infection. Our idea then is to raise the resistance of the patient, in other words, to put into the patient antibodies in sufficient quantity to overcome the infection. This is done by inoculating the patient with a killed culture of the organism that is causing the disease.

Bacteria are destroyed in a number of ways, phagocytosis, bacteriolysis, precipitation, and coagulation. Their destruction is brought about by antibodies or ferments known as phagocins, bacteriolysins, coagulins and precipitins. In vaccinating we not only attempt to raise the phagocytic powers of the white corpuscles but also try to give to the tissue juices bacteriolysins, coagulins, and precipitins.

There are two kinds of vaccines from killed cultures,—stock and autogenous. Stock vaccine is a polyvalent affair; in other words, it contains all of the organisms that have caused the disease. It reminds me of the prescription known as a gun-shot remedy. An autogenous vaccine, on the other hand, is made up from the patient's own pus. Both have given good re-

sults. The best results have been gotten from a mixture of the two.

The dose of vaccine, just like the dose of a drug, varies with the man prescribing. We usually make the initial dose a small one, and gradually increase it. It is well not to increase the dose too rapidly as we are liable to set up a negative phase; about 100,000,000 to 300,000,000 organisms is the usual initial injection, and this is increased slowly until the patient gets several billion in each injection. The treatment should be given about once a week, and should be kept up for a considerable length of time—six months or more.

In reviewing the literature one is struck with most gratifying reports of cures brought about by the vaccine treatment. Goodley reports 70 cases treated by vaccines, 45 cured, 13 relieved, 11 disappeared, 1 died (intercurrent injection). Eyre and Payne report 33 cases with 20 cures and 4 improved, 8 unimproved. Jones and Hampshire report 5 cases with 5 cures.

Diseases.—In chronic alveolar osteo-myelitis we have a condition in which the toxins and poisons are liberated at the proximal end of the food canal. Absorption takes place not only at the seat of infection, but also along the entire intestinal tract. The pus and bacteria swallowed may set up a gastritis or a gastro-enteritis. Vomiting of mucus, diarrhœa, and subacidity often occur in cases of pyorrhœa alveolaris. Many of us have treated gastritis and gastro-enteritis initiated by pyorrhœa alveolaris with no avail, simply because we hammered away at the symptoms and paid little or no attention to the real cause of the condition. Tonsillitis, bronchitis, broncho-pneumonia, lobar pneumonia, post-nasal pharyngitis, antral trouble, etc., may be secondary to chronic alveolar osteo-myelitis.

The constitutional diseases due in a measure to oral sepsis are rheumatoid, or infectious, antritis and pernicious anemia. Baer and others have repeatedly called the profession's attention to the fact that patients suffering with infectious antritis have bad teeth and gums, and that by the removal of the carious teeth and careful after-care of the mouth, a large proportion show marked amelioration of the symptoms. The disease is supposed to be caused by the absorption of a toxin from an infected foci. Pyor-

rhœa alveolaris offers ample chance for such an absorption.

I have seen several cases show marked improvement with careful attention to oral sepsis.

Pernicious anemia is a condition in which there is a destruction of red blood cells. The organs, liver, spleen, etc., show an accumulation of iron which perhaps is the end product of the destroyed blood cells. The agent producing this hemolysis is known as a hemolysin. Streptococci and other cocci exhibit the power to hemolyze blood in a culture tube; in other words, they elaborate a ferment, or hemolysin, which brings about the destruction of blood. It is quite reasonable to assume that the hemolysins producing pernicious anemia may be found in pyorrhœa alveolaris, although we have no definite proof that such is the case. Hunter thinks pernicious anemia is directly due to oral sepsis, but his statements have met with considerable opposition.

PYORRHOEA ALVEOLARIS.*

By R. H. WALKER, D. D. S., Norfolk, Va.

The very varied opinions held by many of the leading men in our profession regarding this disease, its cause, effect and treatment, makes me rather hesitate, because many of the opinions are advanced after deep scientific research—much beyond what it is the privilege of the average practitioner to indulge in. However, the idea of this discussion is to the end that by mutual exchange of ideas and experiences we may make some forward step in the treatment of this disease, which has such a firm grip upon the human race. It is a foe that challenges the very best effort of the most aggressive and yet careful practitioner, and its conquest requires care, concentration, a steady hand, a keen sense of touch and sound judgment.

I use the term pyorrhœa advisedly, knowing that there is a question regarding the correctness of the term, for many men in referring to this disease give it varied designations, viz., pyorrhœa alveolaris, Riggs's disease, alveolitis, phagedemic pericementitis, interstitial gingivitis, or peridentitis; however, the conditions are the same and must be met and treated along similar lines. The public has some vague idea of what pyorrhœa alveolaris is, and hence I use that

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term until the authorities can come together on some term which all can unite on.

The various stages of the disease should be designated in some way, and in this respect I think the subdivisions as given by Dr. H. M. Fletcher are adequate and correct, viz., primary, chronic, suppurative, and necrotic.

But at this point let us consider for a little while the etiology of the disease. Opinions seem widely divergent and almost evenly divided as to whether local or constitutional conditions cause pyorrhœa, but each day now brings more of the eminent pyorrhœa authorities to scoff at the mere idea of systemic conditions being responsible for mouth pyorrhœa, and their arguments, taken with some self-evident facts, convince me that the disease is of purely local origin. Of course, I grant that in patients of certain temperaments and some of continued poor health the disease is more prevalent than in perfectly healthy people, not because of any constitutional cause, but because the tissues are more susceptible to this or any other disease than in one of robust health. This can easily be explained by the great lessened vitality of the patient, and the lessened power of resistance of the tissues to the ravages of any disease.

Pyorrhœa may exist in persons who have not a particle of uric acid in their system, but just here is where our profession has so long had a pitfall to take refuge in, by use of the time-worn, oft-repeated and much abused term for the patient, that they were victims of uric acid diathesis, but I am forced to say that I do not think our medical friends need chuckle, for they have many patients which they put in the class of "chronic anemia," or "rheumatism," and look wise. Taking for granted, then, that pyorrhœa is of local origin, we can now consider more intelligently the more immediate causes. Some authority has divided them in the following order, as he says, according to their importance:

- (1) Deposits of various kinds;
- (2) Faulty dental operations;
- (3) Imperfections of the dental arches.

But if I were to arrange this table in the order of its importance, I should easily place the third classification in the leading position. While I do not at all underestimate classes one and two, to my mind class three is by far the most prolific cause of pyorrhœa which we have to combat. When under class three we consider the

following: irregular arches, irregular teeth, non-occlusion, mal-formed teeth and mal-occlusion, it is easy to see that in this class much of the trouble arising from classes one and two can readily be accounted for. Under the first of these subdivisions, when the dental arches are irregular and constricted, with the teeth lingually inclined, it is well-nigh impossible for the patient to establish oral cleanliness without the frequent and regular aid of his dentist. Neglect here is obliged to terminate in ultimate disastrous results. In the second class, where there are irregular teeth, much the same result can be looked for; debris accumulates and decomposes, inflammation of soft tissues results, gums are forced away, deposits accumulate and extend down the root surfaces until we have a case of pyorrhœa well under way.

In cases of non-occlusion, nature speaks loudly to us of the uselessness of inertia and inactivity, when it causes these teeth to reach out, as it were, for some force to combat, and in the end these teeth are lost.

In the case of mal-formed teeth, one typical condition cited suffices, viz., when there are abnormally large teeth with thick, bulging, bell-like crowns and small necks. These teeth seem to be particularly susceptible to pyorrhœa while, strange to say, caries is seldom present. Mal-occlusion is the greatest bugbear of this whole classification. In cases of undue lateral stress upon mal-posed and irregular teeth, there is great havoc wrought. The constant and heavy stress of mastication, along with the nervous grind and gritting of teeth found with a great many persons, at this point of mal-occlusion, by overstimulation, gradually loosens even the firmest tooth, deposits form and progress deeper and deeper into the socket until a typical case of pyorrhœa is present.

One most prolific source of this mal-occlusion is the early extraction of the sixth-year molars. These teeth appear at an age when the child has only deciduous teeth in the mouth, and comparatively few mothers know when these molars appear that they are permanent teeth and the most valuable grinders. It is an extremely important fact that if these four sixth-year molars are normally posed and in correct alignment with the jaws, and the temporary molars are not extracted too early, the child will not be a victim of a crowded dental arch with mal-posed and

unrelated teeth, with the prospect ahead of from two to three years in the hands of an orthodontist. I venture the assertion that a large per cent. of those present to-night are victims of this very grievous mistake, and to-day find themselves with these V-shaped spaces involving not only the anterior and posterior surfaces of the second molar, but also the posterior surface of the second bicuspid and the anterior surface of the third molar. In many instances, I have been grieved to note that all three of these teeth are loosened from pyorrhœa, apparently solely as a result of this extraction of the sixth-year molar.

With all courtesy to my friends of the medical field, gentlemen, the School Board should send a competent dental man along with the medical man in his school inspection tours, but our School Board, which is in the forefront along many lines, is sadly behind the pace set in this matter in many cities.

The dentist himself is not without blame very often in causing pyorrhœa by faulty dental operations. It is a most lamentable fact that many dentists are very careless in some most important details of their work, such as poor contact points, imperfectly finished cervical margins of fillings and crowns, ill-fitting partial dentures with improperly adjusted clasps; all are contributory causes to irritation of the soft tissues, thereby forming pockets for the retention of debris and later pyorrhœa.

Dr. J. D. Patterson, of St. Louis, says as to the etiology of this disease: "Any irritant, of whatever nature, which impairs the integrity and continuity of the gingival margin may cause pyorrhœa, and without this impairment the condition will not be established. This may be followed by another proposition, viz., systemic condition or a constitutional diathesis, without local irritation, does not destroy the integrity of the gingival border. The irritation which may dissolve the integrity of the gingival border may be present in various forms. The deposition of the calcareous salts from the saliva upon the necks of the teeth is the usual form of irritation. Next in importance may be classed the nests of putrefaction and fermentation about the gingival border and interproximal spaces. Again, mouth-breathing dries the delicate border, and thus function is interfered with, and in all these irritations we have the protective re-

action of inflammation against the common enemy, Irritation." Dr. Patterson further states, "The explanation of the source of the serumal or sanguinary points and plaques found in pyorrhœa is the simple and reasonable one that in all inflammatory conditions there are exudations, and whether they are simple serum, as in the first stages, or pus, as in the later suppurative stages, there is in this matter calcium phosphate, calcium carbonate and magnesium phosphate; and in the changed environment caused by functional disturbances these salts are logically precipitated, and thus form an irritant to the tissue about which it is deposited, inciting by its impact or touch, inflammation of soft tissue and absorption of the bony tissue until the tooth organ is exfoliated."

It is the writer's opinion that the serumal deposits in pyorrhœa are subsequent to the initial inflammation and are directly from the inflammatory products.

Under the head of diagnosis, I believe the following classification, given at the beginning, to be the most acceptable: Primary, chronic, suppurative, and necrotic. In the primary stage we find collection of deposits on the necks of the teeth, gradually extending under the margin of the gums, and by irritation causing inflammation, forcing the gums further away; we find that they bleed easily and gingivitis is the result.

If this condition continues without surgical interference, a chronic condition is established which is indicated by a red, irritated, inflamed condition which is sensitive and bleeds freely on the slightest touch. Serumal deposits are formed, and then appear pockets and, subsequently, an exudation of pus, which is, of course, the suppurative stage. This may continue further and by continuous suppuration the alveolar process becomes more or less absorbed. This will in time become infected with bacteria, and necrosis at this point is the result.

A necrotic pyorrhœa condition may also be brought about by irritation, inflammation and infection caused by food being forced into meat pockets and by continuous presence of pus, as in the case of an alveolar abscess. A pyorrhœa condition does not necessarily mean loose teeth, for there are many stages of the disease before that condition exists. Let it be understood that teeth may be absolutely firm and yet pyorrhœa

can be present in advanced stages. We who believe in the surgical treatment for this disease generally concede that it is due to a diseased periodontal membrane.

I hear that we are to have it stated in this meeting to-night that there is no such thing as a periodontal membrane, but the man who so states must produce evidence which is indisputable before he can have the Amen of a large number of *our* profession. We know that the calcareous deposits are mostly attached below the enamel margin and after gingival border has been broken down, even to exposing the periodontal membrane, which membrane we know if exposed to the fluids of the mouth, becomes diseased and laden with micro-organism. To remove these deposits and re-establish a smooth polished surface of the root is our work, and no light and easy task it is, but one which must be faced with patient determination, by both patient and operator.

Choice of your instrument means, to a great extent, success or failure. Many instruments used simply deface and furrow the root surfaces instead of leaving them smooth and polished. The best instruments I have seen thus far are those made on a plan of a Japanese draw-plane, which has a bearing in front of the blade, and this instrument will leave the root surfaces smooth. One can easily determine by keen sense of touch whether you are removing calcareous deposits or diseased membrane or when you have the root surface free of these offending agents. There are some cases where the disease seems to have penetrated the alveolar process with occasional channels running from one root to another through the process. These cases usually show a chronic inflammation with engorged blood vessels due to absorption of pus, which if allowed to continue through a prolonged period produce troublesome conditions. *In fact, I have seen a number of cases of arthritis very markedly improved by the correction of this pus absorption.* Much has been written about the bacteriology of pyorrhœa, and Prof. Hydeyo Noguchi, of the Rockefeller Institute of Medical Research, has made some discoveries which are of especial interest in the treatment of this disease, but I shall leave that end of the subject to my friend, Dr. Budd, for development and enlightenment. But we do know that the deposits in this disease are generally albuminoid or colloidal in part and in

the early stages washes of neutral and alkaline salts are very beneficial, for these do not coagulate, but are solvent of such substances before they become too resistant. After the teeth have been thoroughly cleansed of all deposits and a polished surface left, then a stimulating astringent should be used in the pocket, viz., potassium iodide, 60 grs.; zinc phenosulphonate, 60 grs.; iodine, 80 grs.; glycerine, 100 grs.; water, 192 minims. The patient is then instructed in necessary home treatment. It is often necessary to splint these loose teeth, and in many cases it becomes necessary to retain these splints permanently. A paper on pyorrhœa can hardly be complete without a few words on Oral Prophylaxis. We can practice oral prophylaxis without there being pyorrhœa, but we can not cure pyorrhœa and keep it cured without the oral prophylaxis treatment at frequent and regular intervals. The practice of the day is the adoption of preventive measures and the restoration of the teeth to a state of nature, is in line with the highest attainment in dentistry.

Proceedings of Societies, Etc.

NORFOLK COUNTY MEDICAL SOCIETY— MEDICAL SECTION.

Reported by FRANK H. HANCOCK, M. D.

Pyorrhœa Alveolaris

Was the subject for discussion at the March, 1913, meeting of this section.

Dr. Chas. J. Andrews was much interested in the presentation of the literature of this subject by Dr. Budd,* and the detailed description he had given of the organisms found constantly in the buccal cavity, especially the spirilla organisms isolated by Noguchi; macrodentium, microdentium, treponema mucosam, micrococcus catarrhalis, etc.

In regard to the advice Dr. Budd had given with respect to the initial dose of vaccine not being too large, and its gradual increase, he would like to mention a case, he said, of prostatitis where he had used an autogenous vaccine prepared by Dr. Budd of staphylococcus albus, with immediately beneficial results.

A hundred million organisms were used to start with, which were increased to one billion

*See paper by Dr. Budd on page 49.

*See paper by Dr. Walker on page 42.

in ten days, when the discharge disappeared. Some weeks later the man contracted another case of gonorrhœa, which was followed by an obstinate prostatitis. Instead of using only a million organisms to begin with as before, the speaker said he started where he left off, that is with a billion. An intense reaction followed, and he was in the presence of the *negative phase*, described by Dr. Budd in his paper. When this had passed, a hundred million organisms were given, increasing as before with the eventual recession and disappearance of the prostatitis.

Dr. Burnley Lankford approved very heartily of what Dr. Walker† had said about oral hygiene being indispensable to the cure of pyorrhœa alveolaris, as it was often indispensable to its cause. Children taught to care for their teeth will care for them through life, just as they will remember the prayers they are taught, and the lessons they learn in those formative days, both from observation and experience. Given the benefit of this habit, they may be saved from pneumonia, caught from cocci delayed in the buccal cavity; from pernicious anæmia developing through the hemolytic effects of streptococci and staphylococci, lurking in the recesses of that mucous membrane; from pseudo-diphtheria that follows the advent of the spirillum of Vincent's angina; and, finally from the deforming *arthritides* that follow chronic absorption from pus cavities, situated in and around the teeth, spoken of here this evening as pyorrhœa alveolaris.

Dr. John Winston thought that with such a variety of organisms in the mouth there might be some difficulty in determining which was the offending species. In preparing a vaccine it would seem that this knowledge would be significant because of the specificity of vaccines, a foreign vaccine of course being about as efficacious as mummy dust would be, and as sensible.

Dr. W. H. Pearson, orthodontist, was of the opinion that no vaccine could be, or would long remain, efficacious, in pyorrhœa alveolaris unless there were perfect occlusion. If inclined surfaces were not kept in correct apposition, if teeth were set at varying angles, leaving interstices where food might accumulate and decompose, pyorrhœa would develop and vaccines could not prevent a recurrence, if they succeeded in relieving the present attack. Only the dentist

or the orthodontist could remedy that by a rectification of the congenital defect of the arches, or of the individual teeth.

Section adjourned.

Analyses, Selections, Etc.

Various Indications for Local Anesthesia.

G. W. Crile, Cleveland, gives this technic for his anoci-association: "The patient is anesthetized as usual, but the entire line of incisions is carefully blocked with novocain, including the peritoneum. If then at the end of the operation and before the peritoneum is closed, there is applied around the entire line of stitches a complete anesthetic block that will last a number of days, such as 50 per cent. alcohol or quinine and urea hydrochlorate, and if in stitching the peritoneum every stitch is placed within the blocked zone, then the efferent impulses caused by stitch irritation are blocked and hence cannot excite this protective mechanism of intestinal inhibition.

On trial of this method, it was found that such blocking does minimize or even prevent post-operative gas-pains in all sorts of abdominal operations. The principal here enunciated has been more or less tested in a series of over 2,000 by myself. In the last 1,000, the death rate has fallen to 1.8 per cent."—(Keen's *Surgery*, Vol. VI, p. 158).

A. D. Bevan, discussing the paper of Dr. C. H. Frazier on Exposure of Structures at the Base of the Skull, before the Mississippi Valley Medical Association, October 22, 1912, said that novocain has the advantage that it can be sterilized by repeated boiling, without interfering with the strength of the solution. One can infiltrate the neck with an ounce of one-half per cent. novocain with great freedom from danger, and in an ordinary case a much smaller amount than this is quite sufficient.

Bryan, noting the work of Stoeckel, of Germany, said that in employing sacral anesthesia for the amelioration of labor pains, his plan was to inject solutions of novocain varying in strength from one-fifth to 3 per cent., and in quantity from 3 c. c to 83 c. c. To this was added a little suprarenin. This method was employed in 141 cases of labor with unquestionably favorable results in 111. The sacral pains

especially were reduced.—(*Jour. Tenn. State Med. Assoc.*, October, 1912).

The Sacroiliac Joint and Its Injuries—Some Recent Teachings Contravened.

R. L. Payne, Norfolk, says that by preponderance of authority we are forced to conclude that this joint, save in pregnancy, is a true synchondrosis, and we can readily appreciate were this otherwise, locomotion would be seriously interfered with. It has been the received opinion of surgeons in all the past that the sacroiliac joint is so resistant and so well protected as to make injury thereof exceedingly rare. Surgeons have further agreed that any possible injury of this joint is to be regarded as of very serious import; that dislocations of this joint are practically impossible without fracture of some of the pelvic bones; and that, should dislocation occur, it is irremediable.

Lately, we have been told that the sacroiliac is a very loosely constructed joint, not only relaxing in pregnancy, but slipping about more or less freely at every menstrual period; that it is very susceptible to injury; that strains of its ligaments are exceedingly common from slight causes; that strains frequently lead to subluxations; that subluxations immediately result from trivial injuries, and that dislocations are more common in this than in any joint in the body. Further, that while the result of these injuries is serious, giving rise to all sorts of pains and aches, from occipital neuralgias to sciatica, they are fortunately easy of correction. Sitting, standing or even lying long in one position leads to strains of the ligaments of these joints which at first are readily relieved by changes of posture, but which, if often repeated or long continued, lead to such relaxation that subluxations result. Payne believes that the ache which follows any long-continued posture is simply the result of muscle-tire. If the decubitus of typhoid fever, for instance, could strain the ligaments of the sacroiliac joints, then its long continuance when the resistance of every tissue is so seriously lowered, should constantly lead to permanent relaxation, and a large percentage of such patients should suffer from bilateral luxation of the joint, more or less, complete. Experience shows that this is not true.

The production of pressure upon the sacral plexus and consequent intractable neuralgias of

the lower extremities is said to be due to rupture of the ligaments and subluxation of the joint following lifting, straining or very insignificant falls. It is hard to believe that an injury so slight as to produce no serious obstacle to locomotion could do this, remembering how the plexus lies on the pyriformis as it passes over the sacral edge, and recalling the wide range of motion the nerve constantly undergoes in the normal leg movements. Especially it is hard to believe that a continued subluxation is the cause of a sciatica that is intermittent, as in so many of the published cases.

Quoting Goldthwaite that there are many instances in which there is entire absence of the pubic bones without serious inconvenience, Payne comments that if this be so, the action of opposing muscles must lead to considerable strain of the synchondroses and, if it were ever possible, to subluxations; and yet we are assured, by inference, that these patients were without joint-pains and without sciatic or other neuralgias. Regarding the motility of the joints in pregnancy, the writer says that while pain is the rule, sciatica is too rarely present to be even considered a sequel.

Finally, regarding the claim that the most frequent luxation is one of the sacrum backward upon the ilia, he considers the anatomy of the parts and states that this is a physical impossibility without fracture of the ilia or, at least, the most absolute and complete breaking up of the joint. He quotes a score of authorities in support of this contention.

Dr. Payne studied the cases reported by Goldthwaite, Meisenbach and Dunlop and deems them far from conclusive. Speaking of one of dislocated sacrum of fifteen years standing, reduced under anesthesia and retained at first by adhesive-plaster strapping and later by a pelvic belt, he pictures the changes that occurred in the joint and the small likelihood of retaining it in position by the means employed over the abundant soft parts of the region. If a pad held in place by a spring with sufficient force to maintain a correction be employed, as advised in the treatment of other cases, one can imagine that sloughing of the skin would occur.

Some of the reported cases show symptoms which appeared and disappeared for many years. It appearing that the only proof of diagnosis seems to be in the relief from treatment.

how are we to know that the relief obtained is not merely the occurrence of an intermission? Meisenbach obtained his best results by prolonged rest in bed with support of the spinal column by jackets—the very best treatment for spinal sprain and other lesions presenting similar symptoms.

The X-rays should establish the truth of the contention, but it is claimed that except in one case, there has been no satisfactory demonstration with them. The autopsy in this case, Payne says, leaves little doubt that the patient had tuberculosis of the joint; and we know the ease with which the X-rays penetrate tuberculous bone.

Recognized authority does not sustain the idea of simple luxation of the sacroiliac joint or that it slips and slides about on slight provocation. That this joint may be strained, is no doubt true, but that every backache is to be attributed to such a cause, or that such a condition leads to intractable neuralgias and invalidism, still remains to be proven. A region so heavily covered by ligaments and tendinous structure must necessarily be frequently affected by rheumatism, often the intractable gonorrheal type; the pain in the hip and thigh must often be the result of flat foot, and Tubby has shown that the symptoms attributed to injury of the sacroiliac joint are frequently the result of asymmetry of the legs and are readily relieved by compensating the shortness of one leg by a cork sole in the boot.

In summing up our conclusions from this study of the sacroiliac joint, it is evident that all the symptoms attributed to lesions of the joint are subjective in character, easily feigned by the malingerer and difficult to disprove by the doctor. That sprains do occur here as in all other joints is no doubt true, but that such sprains are readily cured is also true. Concerning the occurrence of subluxations, we can only render to our orthopedic friends the Scotch verdict "not proven." Pleasant though it would be to believe that all the backaches and legaches of our patients may be traced to a single lesion, readily cured by a few adhesive straps and pelvic belts, we are forced still to study each case as a separate entity and try to determine which one of a number of causes must be removed to effect a cure.—(*American Journ. of Surg.*, November, 1912).

The Use of Sodium Bicarbonate in Gastro-pathies.

Only moderate doses of this agent must be given, the maximum daily being one and one-half drams, says E. Binet, Vichy, France. The patients taking the salt are those affected with disorders of gastric evacuation, the stomach emptying itself too slowly. Late evacuations are met with in two classes and characterize two conditions. In the first, owing to insufficient peristaltic contraction the churning of the alimentary mass is too slow and insufficiently stimulates the opening of the pylorus. In the second, the muscle retains its normal tonus, but the contractions, however strong, are able to overcome but slowly the spasm causing closure of the pylorus. In the first condition, diminution of the secretion, hypopepsia, is parallel with the muscular atony—it is the condition of its evolution, and its degree enables one to judge the degree of gastric hypotonicity. In the other condition, hyperpepsia is generally present, and the higher its percentage the easier and stronger is the reflex occlusion of the pylorus.

Clinically, gastric pain in itself seems to be a sign of abnormal evacuation whatever be its form in the course of digestion or its conditions of time and duration.

For all these reasons bicarbonate of sodium is indicated in a great many cases. Except when there is an acute ulceration (hematemesis or melena) and except in some cases of gastric cancer, its use may be freely recommended. It must be considered not so much as giving an immediate and temporary result, but as a regulator of gastric digestion. Therefore, it should be used to prevent pain rather than to stop it. It is because of this that it seems rational to prescribe it in small doses repeated in the course of the same digestion. The following combinations seem the best:

R Sodii Bicarbonatis gr. xij.
Magnesii Ponderosi gr. iv.
Pulveris Belladonnae Fol. gr. 1/6. M.

Patients with dyspeptic pains connected with motor insufficiency take two of these powders an hour and a half-hour before, and a half-hour and an hour after each meal. Patients whose delayed evacuation is connected with pyloric spasm produced by or kept up by hypersecretion, take the powders during the whole of the digestive process, beginning an hour after meals and

continuing at intervals of an hour and a half until the next meal.

Bourget's mixture, which is as follows, may be prescribed instead of the foregoing:

R Sodii Bicarbonatis 5ij.
Sodii Phosphatis
Sodii Sulphatis, aa 5ss.
Aquae 5xxij. M.

Sig. One tablespoonful to one tablespoonful and a half to be taken in the morning as soon as the pain appears.

It may be advisable to heat the solution of sodium bicarbonate to about 100 degrees F., since it is well known that fluids the temperature of which closely approaches body-heat are less irritating to the mucous membranes with which they come in contact.

In spite of all this and in spite of all the advantages of the alkaline treatment with bicarbonate of sodium it cannot be expected to work wonders even in the most suitable cases. Proper dietetic treatment must be instituted at the same time. The dose should not be reduced as soon as the pains become less severe or less frequent; and the treatment should be started at the same time that dietetic measures are begun, but must not be continued after the latter has been stopped.—(*Paris Medical Progress*).

Tricuspid Regurgitation and Stern's Posture as an Aid in Its Diagnosis.

Louis Bertram Sachs, New York, states that relative tricuspid incompetence is a comparatively frequent phenomenon since it occurs in the course of slight dilatation of the right heart, in disease of the left side of this organ. The murmur of tricuspid insufficiency when not accompanied by marked dilatation is slight and evanescent, but may be intensified by position. When accompanied by advanced dilatation of the left side of the heart the signs and symptoms are very marked. The murmur of tricuspid regurgitation is of common occurrence, but the absence of a murmur does not rule out the lesion. The murmur is soft and blowing synchronous with the first tricuspid sound, and with the point of maximum intensity to the left of the sternum. If regurgitation is marked there are severe dyspnea, indigestion, distention of the abdomen, edema of the legs, and cyanosis, and the venous and liver pulses are present. The murmur is intensified by the lowering of the head when the patient is lying down. The author

gives histories of two cases illustrating the value of this position in the recognition of the lesion.—(*Medical Record*, February 10, 1912).

Sexual Neurasthenia and the Prostate.

G. Frank Lydston, Chicago, calls attention to the cases of neurasthenia with a sexual element either psychological or physical in character. This element is generally associated with prostatic hyperemia or hyperesthesia of the prostatic urethra. All of the subjects of this form of neurasthenia have been masturbators, many have indulged in sexual excesses, and many have had gonorrhœa. These conditions have produced disturbances of the prostatic circulation and innervation. There are continual sexual stimuli sent to the psychosexual centers. One must treat the prostatic urethra as well as counsel these patients morally. This may be done by the use of a solution of nitrate of silver with massage of the prostate. A swollen and tender prostate underlies many nocturnal emissions. Hydrotherapy, general massage, static electricity, and irrigations are of value. Rest of the sexual organs may be given by temporary resection of the vasa deferentia. Impotency has an important effect on the patient's mind. A remedy is resection of the vena dorsalis penis, which at least has a psychic effect.—(*Ibid.*, February 3, 1912).

Book Notices.

Surgical After-Treatment. By L. R. G. CRANDON, M. D., Assistant in Surgery at Harvard Medical School, and ALBERT EHRENFRIED, M. D., Assistant in Anatomy at Harvard Medical School. Second edition, practically rewritten. 8 vo. 831 pages, with 264 original illustrations. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$6.00 net; half morocco, \$7.50 net.

This volume is a veritable encyclopedia for the odds and ends of medicine,—if you don't know where else to find what you are after, look in here. The title of the work might lead one to suppose the worries of the surgeon alone are cared for, and that nothing of importance to the physicians had a place in its pages. This, however, is far from being the case, for although surgical after-treatment receives every attention to be desired, preparation of the patient for, and suggestions worthy of consideration during operation are fully

presented; while the "thousand and one" things of interest to the every-day doctor—bed-sores, massage, indications for electrotherapy, electrotherapeutic technique, therapeutic immunization and vaccine therapy, Coley serum for malignant tumors, invalid and convalescent food recipes, etc.—give the book an all-round value.

Editorial.

Opposition to Reporting Venereal Diseases.

That gonorrhœa and syphilis should be reported to local boards of health like other reportable diseases continues to be a mooted question, advocates, *pro* and *con*, remaining far apart in their conclusions.

Were it possible for boards of health to secure data relating to all venereal diseases in their respective communities, the good to be accomplished would, beyond question, soon show itself in lessened contagion. Differing, however, from troubles like diphtheria, typhoid and scarlet fever, measles, small-pox, etc., in that gonorrhœa and syphilis carry reproach in the public eye and mark the possessor with stigma, such sufferers would, in many instances, prefer to manage their own cases in secrecy, resorting to nostrums, etc., rather than put themselves under the care of competent medical attendants, who may be required to report them. Cases of this sort, with no medical supervision, are the ones that will most likely prove dangerous in spreading the disease.

In the few instances where practicable, as, for example, the prostitutes of Norfolk, as also infected enlisted men in the army and navy, compulsory medical inspection and control of individuals affected has proven of great value. But the situation is entirely different in private practice where patients will not willingly submit to having a record of their moral delinquencies registered against them in the office of a public official. A number of States have adopted laws bearing on this subject, the patient's identity being hedged about in some, as in Michigan, where he need not be reported by name, but by office number or other sign. Another State requires a physician's certificate showing a clean bill of health in the male before marriage, but a commentary we noted on this showed the ease with which this law could be negated.

The whole problem is filled with perplexities, and is yet far from being solved. Possibly a law that protects the patient somewhat after the Michigan method, and at the same time seeks his co-operation may suggest a way.

Possibly as showing how deep-rooted is opposition to the reporting of venereal diseases, a news item in the *Journal A. M. A.*, for April 5, reports that the Medical Society of the Borough of the Bronx recently entered a protest against an order of the Health Department requiring certain hospitals to record with the Department the names and addresses of all persons suffering from venereal diseases, and if possible the names and addresses of all persons supposed to be the sources of infection. Among reasons assigned are that a knowledge of such cases is confidential and privileged; that such reports may cause black-mail and divorce suits; that statistics will not be improved; that all such diagnoses are not correct, and that prevention will not result from the order, etc.

Surely some of the objections noted from cosmopolitan New York are not without reason in less populous sections of the country.

Medical College of Virginia and University College of Medicine Amalgamated.

As it was deemed advisable to have at the head of the combined medical schools in Richmond a business man who could give his whole time to the work, which Dr. Stuart McGuire was unable to do, Dr. S. C. Mitchell, at this time president of the University of South Carolina, but formerly connected with Richmond College, was chosen president of the school to enter upon his duties in June. Dr. McGuire will be dean of the faculty.

Still Another Cure for Tuberculosis Promised.

Whatever may be the outcome of Dr. Friedmann's experiments, we have the hope of still another means of prevention and cure of tuberculosis, which comes to us through noted specialists for the treatment of tuberculosis almost at our own doors, and who have been closely associated with the profession in this section—Drs. Karl von Ruck, of Asheville, and C. A. Julian, of Thomasville, N. C. So gratifying have been their results in the treatment of a large number of patients, that Government officials of the U. S. Public Health Service and Navy have been deputized to make thorough investigations of the method as presented by these authorities.

Malarial Fevers in Alabama.

Replies received from 431 of the 2,099 Alabama physicians, to whom circular postals were sent by the Public Health Service, elicited statistics, from the compilation of which P. A. Surgeon R. H. von Ezdorf, of the Service, has deduced the following summary of deaths in Alabama due to malaria, during the calendar year of 1912. The number of deaths was smallest for the months of January, February and March, gradually increasing, and largest during August, September and October, the deaths among the colored exceeding those among the whites. The reports also show that 43 per cent. of deaths occurred during the first two decades of life.

The Montgomery County (Va.) Medical Society

Will hold its next regular meeting in Christiansburg, May 1, at 1.30 P. M., at which time there will be had the election of officers for the ensuing year. A further consideration of the black-list question will come up and it is expected that this matter will be permanently settled at this time. Following the business of the meeting there will be an address by Dr. P. B. Barringer on *Medical Ethics*. This lecture will be delivered in the auditorium of the Courthouse, and will be open to all men whether or not they are members of the medical profession.

Surry County (Va.) Medical Society.

At the annual meeting of the Society, held at Dendron, Va., April 10, 1913, the following officers were elected for the ensuing year:—President, Dr. S. B. Barham, Runnymede, and secretary, Dr. W. W. Seward, Surry.

Two Other Medical Colleges Merge.

The amalgamation of the Medical School of the University of Maryland and the Baltimore Medical College, under the name of the former, a subject which has been agitated for some time, has at last been consummated, and the consolidation will be in force after the June, 1913 commencements of the two colleges.

Open Air School Movement a Popular One.

The State Board of Health of Rhode Island has authorized and empowered the school committee of any city or town in that State "to establish within its limits open-air schools for the instruction of such children of school age

as, in its judgment, are not in such physical condition that they can be safely instructed in the ordinary schools of the city, and to furnish for the conduct of such schools, such medical, food, or other supplies as are necessary for the purpose for which such schools are or may be established."

In our last issue we announced with what apparent success the first open-air school, recently opened in this city, had met. We note that Kentucky, too, is falling in line, the first school of this kind having been opened in Lexington, March 17.

Sterilization of the Unfit Favored by Georgia Doctors.

Sterilization of all criminally insane, idiots, moral degenerates, and persons guilty of criminal assault was approved in a resolution adopted at the annual meeting of the Medical Association of Georgia, which met in Savannah, April 16-18. Physicians in charge of the State Sanitarium for Insane, at Milledgeville, were directed to prepare a bill covering this resolution to be presented in the State Legislature next June.

Dr. Alexander G. Brown, Jr.,

Richmond, Va., of the medical corps, field artillery, with the rank of captain, has tendered his resignation from the service owing to the conflict of professional and official military duties.

The American Therapeutic Society

Will hold its fourteenth annual meeting at the Hotel Willard, Washington, D. C., May 5 and 6. The program shows an attractive list of papers, and several handsome entertainments will be given the Society. Drs. Noble P. Barnes and Lewis H. Taylor, both of Washington, are president and secretary, respectively.

Rockingham Memorial Hospital.

A movement has been started in Harrisonburg, Va., by the Board of Trustees of the Rockingham Memorial Hospital, to raise \$10,000 for the erection of a nurses' home on the grounds of the Hospital. This hospital, which only opened last October, had, to early in April, accommodated 128 patients, with a record of only six deaths.

Study of Pellagra in South to be Continued.

The Thompson-McFadden Commission, connected with the Post-Graduate Medical School and Hospital, of New York City, will shortly return to Spartanburg, S. C., to resume its investigations with regard to pellagra. The commission will be composed of the same men who worked in that field last spring and summer.

The West Virginia State Medical Association

Will hold its annual meeting at Charleston, May 21-23, Dr. Frank L. Hupp, of Wheeling, presiding. Dr. A. P. Butt, of Davis, is secretary of the Association.

Fight Against Tuberculosis a Public Warfare.

We are interested in noting that about \$19,000,000 was spent during 1912 in caring for tubercular patients and preventing the spread of the disease, which is more than a fourth more than the amount spent the previous year. Over sixty-five per cent of this amount was appropriated by local, State and Federal governments, which would seem to indicate that private agencies will soon be relieved of this great responsibility.

Smallpox in Florida.

During February, there were 211 cases of smallpox reported from sixteen counties in Florida. In that month, the cost of vaccine to the State Health Department was \$171.92½, and 2,645 points were distributed in 23 counties.

Dr. Emerson Land,

Of Virginia Beach, has been declared elected clerk of Princess Anne County, Virginia, by a majority of five votes. His election was contested by the former clerk, A. E. Kellum, but the decision gives Dr. Land the position for a term of eight years from January 1, 1913.

Laws for Prevention of Rabies.

The Indiana State Legislature has set aside a portion of the dog tax for the use of the State Board of Health in preventing the occurrence of rabies. This law gives the power to health officers to require the muzzling of dogs or to establish a quarantine for dogs for any length of time that in their judgment may seem proper. The law also provides that persons who have been bitten by dogs and are not able to obtain proper treatment may be given the Pasteur

treatment at Indianapolis free of charge. To the end of March, 1913, 171 persons had been treated, of whom only two had died. In both fatal cases the patient had been badly bitten about the face, and treatment had not been begun for more than ten days after being bitten.

The Sheltering Arms Free Hospital,

Richmond, Va., was benefited to the amount of about \$1,000 as the result of two charitable performances given in this city the middle of April.

Virginia State Board of Pharmacy.

Of the forty-six applicants who appeared before the Board, April 15, there were sixteen who successfully passed the examinations for registered pharmacists, and fourteen for registered assistant pharmacists.

Medical Missionary Needed at Beira, Portuguese East Africa.

The American Board of Commissioners for Foreign Missions, Boston, Mass., has issued an appeal for a doctor and an ordained man for this post. Physicians who wish to investigate this and other opportunities now open for Christian medical service in India, China, Turkey, Korea, and Persia, should write to Mr. Wilbert B. Smith, 600 Lexington Av., New York City.

Obituary Record.

Dr. George W. Sprinkle,

For many years a leading physician of Smyth County, Virginia, died at his home in Marion, April 8, aged sixty-eight years. He graduated from Washington University School of Medicine, now the College of Physicians and Surgeons, Baltimore, in 1870, and became a member of the Medical Society of Virginia in 1906. In addition to his professional duties, he was a prominent church worker, and was highly esteemed by those who knew him. His widow and four children survive him.

Dr. Lewis S. Pendleton,

A graduate of the Medical College of Virginia, in 1860, died at his home in Louisa County, Va., near Fredericks Hall, March 28, at the age of seventy-five years.

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Original Communications.

BREAST FEEDING.*

By EDGAR SNOWDEN, M. D., Washington, D. C.

Some one has said that the business of being a baby should be classed among the extra-dangerous occupations, and the truth of this is seen on examining tables of vital statistics, and noting the high rate of mortality that is incident to the first few years of human life. It is with this death rate in mind, and seeking the best means of lowering it, that I urge the importance of breast feeding, and the necessity that we leave no stone unturned in our endeavor to secure for each infant under our care the food that it is entitled to by the laws of Nature.

In these modern days when so much care is being taken to obtain clean milk for the baby, and milk stations and laboratories are being erected to furnish correct artificial food, are we not overlooking, somewhat, the source of a great natural supply, and would it not be well to devote some study to the physiology of lactation, a function that has been treated with but scant scientific attention?

Statistics seem to show that there is a steady decline in nursing among American mothers, and, if this be so, the future health and development, if not the actual existence of our native American stock is seriously threatened. Whether the reason for this apparently increasing inability of mothers to nurse their young is a real one or not is a most important question, and should further investigations show it to be so, the subject is worthy of our most serious attention. For my part I believe this inability is only apparent, encouraged by a false sense of confidence in the many brands of artificial foods so attractively and plausibly advertised

both to the profession and the laity, and the ease with which modified milk can be prepared. So much has been written on artificial feeding that the importance of breast feeding has been minimized, and the infant is many times taken from the breast on but the slightest provocation.

Social and economic problems exert decided influence in this matter, for it is among society women who, with their teas, dinners, bridge games and theatre parties, regard this maternal duty as an inconvenience if not an actual nuisance, and among the increasing number of women who, through stress of circumstances, must work for their daily bread, and are therefore unable to give proper attention to their children, that we find the fewest nursing mothers. Both these conditions are artificial and unnatural, and will in time work themselves out to a proper adjustment.

As we examine the records of vital statistics, our attention is arrested by the facts that mortality is greater during the first year than at any other time in human life, being highest during the first three months, and that this early mortality is largely due to disorders of the digestive organs.

The U. S. Census reports for 1910 show that in the registration area (about one-half of the population) 154,373 infants under 1 year of age died,—44,695 or 29 per cent succumbing to diarrhoea and enteritis. Here in Washington during 1910, out of a total of 1,068 babies dying during their first year, diarrhoea and enteritis are credited with 268, the only other cause approaching anywhere near this figure being prematurity, with 211 deaths, of whom 168 died during the first week. In England and Wales in 1900, of a total of 927,062 births, 142,912 babies under 1 year died, and of a total of 23,463 deaths from diarrhoea, 17,639 were under 1 year of age. Budin¹ reports in France from 1896 to 1900 a mortality of 20.2 per cent

*Read before the Hippocrates Society, of Washington, D. C., February 13, 1913.

for the first year of life, and that 38.5 per cent of these deaths were due to gastro-enteritis.

Investigating more deeply this sad toll of little lives that are blotted out each year, we are struck forcibly by the great disproportion of deaths among bottle-fed babies as compared to those fed at the mother's breast. In Munich in 1903, of 4,000 dying under 1 year of age, 83 per cent were artificially fed, and in a 5-year period in Berlin only 9 per cent of deaths were among babies exclusively breast fed. Armstrong² in England reports that, of 1,000 babies, but 8.4 per cent of those breast fed died in their first year, compared to 22.8 per cent of those bottle fed. Unfortunately in our country government statistics along this line are not available, but valuable information is given by individual investigators. Dr. W. H. Davis,³ Vital Statistician to the Boston Board of Health, recently wrote letters to 900 Boston women who had been confined during the previous year, and the 736 replies received showed that 533 babies were breast and 203 were artificially fed. His tables prepared from the statistics of Boston are extremely interesting and instructive, showing that only 26 per cent of deaths in infants between 2 weeks and 1 year of life are breast fed. Bottle fed babies between 1 and 3 months show the highest mortality. Of 621 deaths from diarrhoea among children under 1 year of age, 87 were breast fed while 534 or 86 per cent were bottle fed. During the months of July, August and September the deaths among breast fed children were 39, 40 and 40 respectively, about the average rate throughout the year, while among those artificially fed the deaths jumped to 184, 181, 137,—figures which speak for themselves. He shows that since 74 per cent of infant deaths between the age of 2 weeks and 1 year are among bottle babies, and only 32 per cent of babies are bottle fed, then a bottle fed baby during this period is six times more likely to die than one fed at the maternal breast. According to his figures breast feeding would have saved nearly 1,000 lives in Boston that year, and reduced the death rate from 127 to 71 per thousand lives.

McClanahan⁴ states that this lessened mortality and morbidity among naturally fed children is due to the following facts:—The milk of the mother is adapted by Nature to the peculiar needs of the human infant, just as milk of

other mammals is adapted to their young. It contains all the elements necessary to the growth of the various organs and tissues of the infant's body. It is received by the infant in a natural state, unchanged by cooling, modifying, etc. It is a vital fluid as it enters the stomach, stimulating the digestive secretions, and is assimilated with less waste and induces less exhaustion of the vitality of the infant than any prepared food. Hence, there is less expenditure of vital energy in the digestion of mother's milk. Under normal conditions it is a sterile fluid, and is carried to the infant's stomach in a sterile condition. It is ingested at an even temperature, namely, that of the body, and it is at once ready for the action of the digestive ferments. It contains certain protective principles that confer an immunity on the child, and greatly lessen infant morbidity.

With a fretful child and an impatient mother who tells you that her milk is failing, and is certainly not nourishing, if it is not actually poisoning the baby, it is an easy thing to advise bottle feeding, but the responsibility for this action is great and the effects are far reaching. Patience and tact may be tested to their limit in encouraging the mother in her efforts to feed the child, and to convince her that her inability to nurse and the child's inability to digest her milk can only be determined by long and repeated endeavors.

For mother's milk, as Griffith⁵ says, "there is, there can be no good substitute." Not only are disorders of mal-nutrition as anaemia, scurvy, rickets, marasmus and general infections found oftener in bottle fed babies, but also the effects of the first diet are seen in later life, these children when grown being of weaker constitutions, more liable to infections and less able to withstand hardships than those who have gotten their foundation building material at their mother's breast.

Mother's milk has been defined as a true secretion of the mammary gland, forming an emulsion of small fat droplets in which proteids, sugar and salts are held in solution. Cautley⁶ states that it is a variable fluid, of no constant chemical analysis, varying in different women, on different days, at different times of the day, at different periods of nursing, and in each gland. It is modified by the state of health, exercise, menstruation, mental emo-

tions and prolonged lactation, the most frequent cause of variations being mental and emotional disturbances, worry, anger, excitement, etc. The disturbances of lactation that so jeopardize the future health of the child, are in most cases the fault of the mother, and can be corrected with her co-operation, if she is only willing to devote her life for the time being to her duty. With rational measures, we often see a breast supply that is apparently failing hopelessly, become abundant, and the child that was racked by colic and other digestive ailments, adapt itself perfectly to its food and thrive on it.

As Woods Hutchinson has said, the best way to modify milk is to pass it through the mother's body, and that much can be done towards altering the composition of mother's milk is claimed by Cautley⁶ who gives instructions for varying the quantity, the proteids, and fats, to suit the individual needs of the infant. In getting a sample of mother's milk for examination, it is important to remember that the first obtained from the breast is poor in fat while the last is very rich, so the entire contents of the gland should be secured to insure a correct analysis. A poor milk can often be converted into a rich digestible one by giving the mother three meat meals a day and have her take walking exercise morning and evening. In the face of a failing milk supply, nurse the child regularly, for it is during the act of suckling that the mammary gland is most active, and the major portion of milk is secreted, while the action of the baby's lips is our best galactagogue. To paraphrase:—To her that nurseth shall be given, while from her that nurseth not sufficiently shall be taken away even that which she hath. During the first few months of infant life, breast feeding is most important, and nothing should be allowed to interrupt or interfere with its regularity. To advance the feeding hour a little because mother wants to get out sooner, or to make the baby wait while she finishes a shopping trip or afternoon call is decidedly wrong, and may bring on digestive disturbances that will affect the child's health for years.

The first few weeks of the puerperium is, as Wile⁷ points, the most important period of lactation, as the milk undergoes many changes owing to the readjustment of the mother to an entirely new state of affairs and the assump-

tion of new as well as her old duties, and it is in this period that removing the baby from the breast for any cause, may make future nursing impossible. Should the child be artificially fed for a few days for any cause, the breasts should be carefully massaged at regular nursing intervals, expressing all the milk that gathers in them in the mean time. Even if the mother is finally obliged to resort to artificial aid in feeding the infant, she should nurse it regularly, completing the feeding with the bottle, for in this way some of her milk will be obtained, and the good that is done by even a small amount of this is well shown in hospitals for children, where the milk obtained from wet nurses may perhaps be only sufficient to give each baby one daily feeding, and the ones getting this short ration in addition to their bottles, do better than those who have to depend entirely on artificial food. These children can take a higher percentage of elements in cow's milk than those on cow's milk alone.

In some European cities nursing allowances are made to poor mothers to aid them in supporting their families, and putting also a premium on breast feeding. They are allowed 25 or 50 cents a day and an additional 10 cents for the first child fed at the breast and 8 cents for each succeeding one. These children are brought to the dispensaries for inspection when each allowance is issued, and the records show what great good this custom is accomplishing.

That Nature responds to the task before her is nowhere shown better than at times of great hardship and deprivation—for instance, the siege of Paris, when rich and poor, the great and lowly were on the same plane, and there was no milk to be had, for the cows had all been eaten. Then the suckling child depended on its mother absolutely for its nourishment, for if she failed it, starvation stared it in the face. During this time these babies were nursed, and although the adult mortality was greatly increased, the infant mortality was lower than at any time in the history of the city.

The amount of milk that may be secreted is at times astonishing, these cases being seen among wet nurses most frequently, and they show of what the mammary glands may be capable. Budin at one of his Paris clinics obtained 2840 grammes of milk daily from a woman for some length of time, and Churchill

at the Children's Memorial Hospital of Chicago had a wet nurse who for several weeks gave nearly five quarts of milk daily.

Nursing has its maternal advantages also, causing a more complete involution of the uterus and lessening the chances of impregnation at too short intervals, while the general health of the mother may be improved by her increased diet and regularity of life. That the natural affection of the mother for her child is increased by nursing it is a matter of general knowledge.

The medical profession has been partly to blame in the past for the indifference accorded this vital point in the raising of children, for we ourselves have not regarded the matter too seriously, but now with our increasing knowledge of the subject, our duty is to insist on the practice of nursing as well as to preach its advantages, and when we use our most earnest efforts to influence and convince the mothers under our care as to its necessity, many a baby that would otherwise find in a glass bottle the only store of maternal affection on which it could draw, will rejoice in the widely echoed cry of Back to Nature.

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- 1900 S Street, N. W.

A CASE OF MASTOID ABSCESS WITHOUT OTORRHEA.*

By WALTER A. WELLS, M. D., Washington, D. C.

Professor of Laryngology and Otology, Georgetown University.

While it is seldom that mastoiditis presents in all respects a perfectly typical clinical picture, it is also seldom that it departs so far from the type as to miss certain accepted pathognomonic symptoms of the disease and thereby elude a skilled otological diagnostician.

If in the course of a suppurative otitis the patient develops pain of extraordinary intensity in the region back of the ear, which continues in spite of the fact that the ear is freely discharging; if, moreover, the patient com-

plaints of a severe unilateral headache keeping him awake night after night; and if in such a case we observe that the region just posterior to the auricle is red, swollen and edematous, pushing the auricle forward so that it seems to stand out at almost a right angle to the skull, and if then upon trial we find that this region in contradistinction to the auricle itself is exquisitely sensitive to pressure of the finger, a tyro in medicine could say that here we had a probable mastoiditis complicating the otitis.

If, further, he be only enough versed in otoscopy to make sure that the pus is emanating from the middle ear through a ruptured drum membrane, and especially if he should find that the posterior-superior wall of the meatus is sagging, the diagnosis would be certainly confirmed and all doubt would be removed, and it could be said with certainty that this is a typical case of acute suppurative mastoiditis requiring operation. We may then enumerate the main symptoms and signs of this disease and write them down somewhat synoptically as follows:

1. Fever. 2. Pain. 3. Tenderness. 4. Discharge. 5. External redness and swelling. 6. Ruptured membrane. 7. Sagging of meatal wall. 8. Deafness.

Of these some may be classed as pathognomonic, and some as indispensable. By pathognomonic symptom we mean one which may indeed at times be absent, but which when present should be regarded as a positive indication of the disease. Such a symptom is the external redness and swelling which sometimes occurs over the mastoid process.

By indispensable symptom, we mean, of course, one which is and must always be present, and whose absence, therefore, would justify us in withholding the diagnosis. This symptom for mastoiditis is well exemplified in the *otorrhea*. Mastoiditis occurs practically always as a complication of a suppurative otitis, and, therefore, a ruptured drum membrane and discharge may justly be looked upon as truly the *sine qua non*.

The case that I am reporting is only the exception that proves the rule. In addition to these, certain other symptoms and signs may occasionally be manifest or can be elicited, such, for instance, as are obtained by examination of the blood, or by percussion and transillumination, or radiography.

*Read before the Medical Society of Georgetown University, October 12, 1912.

These may be looked upon as more or less confirmatory, but they are neither so constant as those enumerated nor are they so reliable when present. We would class them as supplementary symptoms.

Of the eight main symptoms enumerated, although all are important, there is no one of them which may not be at times missing in a genuine case of mastoiditis. In some cases this is sufficiently explained in the fact that the symptoms in question were possibly in evidence at an earlier and more active stage of the inflammation, and have simply subsided and disappeared before the period when the patient happens to come under observation. This especially might be the case with fever, which is notably absent in instances in which the mastoid is found upon operation to be the seat of most advanced suppurative process.

It is a possible explanation also of some of those rare cases in which no history of discharge from the ear can be obtained, and where upon examination the drum membrane is found to be intact.

This is the class of cases that has given chief support to the theory of primary mastoiditis, on the ground that, had the inflammation originated in the tympanic cavity, the membrane must of necessity have ruptured and given exit to an accumulation of pus. But is it not possible that there had been some weeks or months before an otitis with pus formation, and yet for some reason—it might have been due to an abnormally resistant drum membrane—rupture did not take place? The inflammation gradually subsides, the membrane recovers its luster, but a purulent focus has remained within the mastoid cells which later has become fanned into a fire.

In some cases it is indeed likely that an actual perforation did take place in the membrane, giving rise to a slight discharge, but so slight that it escaped the patients' notice. Later the perforation closes, leaving a scar so insignificant that it is overlooked.

We are of the opinion that a certain number of the cases which have been classed as primary mastoiditis could be explained in this way, and that they ought, therefore, to be rather considered as belonging in the category of latent mastoiditis.

Spontaneous pain occurring in the region back of the ear and taking the form of a se-

vere temporal or occipital hemicrania and often of an intense general headache is another symptom of the greatest diagnostic importance and very seldom absent. But that it is not essential to diagnosis is shown in the case to be reported.

Tenderness over the affected region is, in my experience, the most constant sign or symptom that occurs, and although by some it has been reported as absent, thus far I have not seen a case when it was not in some little measure to be elicited at least upon deep pressure.

External redness and swelling just over the mastoid process is a symptom which, when present, may be regarded as pathognomonic, but, on the other hand, it is one that frequently fails to appear.

In the same class with this is the occurrence of a sagging in the posterior-superior wall of the meatus. They are alike in being symptoms which depend upon the anatomical conformity of the mastoid process, the former occurring when there is a thin external cortex, and the latter when some pneumatic cells closely approach the posterior meatal wall.

The patient in the case I wish to report was a practicing physician in Maine, who was brought to my office by his cousin, Dr. J. S. Stearns, May 24, 1911, to get my opinion in regard to an obscure condition affecting the left ear. A few days before he came a diffuse edema had appeared over the mastoid on that side, which now was of such a degree as to rather obliterate the posterior auricular angle. Upon palpation it was found that there was some tenderness, but not marked and only when considerable pressure was made over the bone. On otoscopic examination we saw a thick red, but perfectly intact drum membrane. Condition otherwise normal. The hearing on this side was such that the watch could be heard on light contact.

The history of the case was learned to be as follows: Just one month previous, that is the latter part of April, the patient developed a cold in the head. In a couple of days from the beginning an ear-ache set in which was quite severe and lasted about ten days. This pain was accompanied by a constant stuffy uncomfortable feeling in the ear and considerable throbbing. At night the otalgia was so severe that he was kept much awake. The patient

suffered so much general prostration from this attack that he went to a hospital in his home city, where he remained some days. His temperature throughout the day was generally sub-normal, but after 8 P. M., would rise to about 99; one evening it went as high as 101. There was complete anorexia. The treatment consisted in hot irrigation of the ear. In a short time the patient's condition improved and he left the hospital.

Especially to be remarked that throughout the entire attack there was at no time the least discharge from the ear, nor did he suffer from general headache.

An uneasy condition persisted about the ear, with deafness, which led the patient to consult two or three different specialists in his home and in New York City.

When I first saw him he reported that he had lost fifteen pounds since his illness began. He went about everywhere, but did not seem equal to doing his regular work. He suffered now no ear-ache, no tinnitus, no headache, no vertigo, and he was sleeping very well at night. There had never been any discharge from the ear.

Because of the suspicious conditions I decided to make an exploratory opening of the drum membrane. No observable secretion appeared at the time, but he reported that on the following day a slight discharge set in, contemporaneous with which there took place a subsidence in the perimastoid edema. Examination of the discharge showed chiefly staphylococci with a few chains of streptococci.

A slight improvement in the hearing also occurred, the patient now being able to hear the same watch which before he only heard on light contact, at two or three inches.

Notwithstanding this improvement, a few days observation convinced me of the necessity of opening the mastoid. This was done under ether at the Homeopathic Hospital, May 30.

The external mastoid cortex proved to be unusually dense and sclerotic, requiring the chisel to be used with greater force and longer than usual. When, finally, however, we were able to penetrate it, we found the entire osseous structure beneath converted into a softened necrotic mass, with pus formation in places.

The bony degeneration extended to the outermost limits of the mastoid apophysis, upward and forwards to include the zygomatic

cells, backward to the ridge of the lateral sinus, and forward to within near distance of the posterior wall of the meatus.

The wound healed rapidly and completely, and from the day of the operation began to show improvement in his general condition. I had a letter from him a few days after he left Washington, saying that he was again at his practice and never felt better.

Here, then, was a case which upon the operating table was proved to be a severe and extensive type of mastoiditis, with abscess formation, yet presenting beforehand so little of the usual clinical symptoms that the patient, instead of being confined to his bed or even to his house, was travelling about the country; and so few of the characteristic signs of the disease were present that no one of the several specialists he had seen in New York or elsewhere had suggested opening the mastoid.

At the time he consulted me to be sure a new symptom had just appeared, viz., the edematous swelling just back of the auricle. But though this might be very convincing in an acute condition with fever, pain, tenderness, otorrhea, etc., in this case with the absence of such usual accompaniments it was not particularly significant, for we know that similar conditions sometimes occur of a purely superficial origin.

There was no discharge from the auditory meatus, nor did otoscopic examination reveal in the appearance of the membrana tympani any of the characteristic appearances of purulent collection in the middle ear.

To come to the point of recommending an operation in such a case it was necessary to lay great emphasis upon the history. A month previous there occurred evidently in the middle ear cavities an inflammatory process probably of a suppurative kind, which as the history shows had never completely undergone resolution. Not only the persistence of indefinite local symptoms pointed to a lingering focus, but the fact that the patient had steadily lost weight, seemed generally prostrated, and made the impression of an individual suffering from toxic absorption, were features of the case that tipped the scales just enough to cause us to decide in favor of an operation.

We do not, therefore, regard this case as one supporting the theory of primary mastoiditis. It seems to us much more probable that it was

a case of atypical mastoiditis, of the latent type, the original focus having been in the tympanic cavity, whence, extending to the pneumatic cells of the mastoid, it had set up there an extensive degeneration, without even having caused a rupture of the drum membrane, and without giving rise to either the active local or general reactions which are customary in such a case.

The Rochambeau.

VIRGINIA'S DENTAL LAW.

By A. B. GRUBB, M. D., Cripple Creek, Va.

"The only real knowledge is knowledge we can use; all other is as moss on stones or hangs as cobwebs around the brain."

The only apology for calling the attention of our profession to Virginia's dental law, or asking it for a perusal of this article, would be a desire on my part to have corrected a bill which recently passed our legislature.

As our law now stands, before a young man can graduate in dentistry, he must have become an M. D. Such a law, to my mind, while in no way attempting to reflect on the motives of the men behind it, will ultimately cause an intolerable condition in our State. As it is now, there are not enough dentists in Virginia to do the work that is actually to be done. Every physician, especially in the rural sections or small towns, who reads this, has extracted many a tooth among his patients, and all because of their inability to have the tooth treated and filled by a dentist. Already there is no such thing as dentistry for the poor, and even the well-to-do are often so remote from a dentist that the only thing to do for "the toothache" is to have it pulled just as quickly as possible.

Yet, in spite of all this, some influence was brought to bear on a well-meaning but unthinking legislature to require that all men who fill teeth, who make crowns and bridges and plates, must first prove their ability to diagnose tabes dorsalis, spleno-myelogenous leukemia, pneumonia, the first, second and third stages of labor, and all the ills to which humanity falls heir.

What interest, what pleasure could a young man find in studying these branches of medicine when he knew he would never meet them again in life? When his examinations were

passed, he would forget it all just as quickly as possible.

Many a young man of mechanical turn finds the science of medicine an impossible barrier between him and dentistry. As a rule, physicians would make poor dentists, and *vice versa*. The one is a mechanical art; the other is a science and art.

I recall a dental student who found physiology his great bugbear, yet I was told by his class-mates that his work in the Infirmary was fine. It is practically impossible for the average man in our short span of life to master two professions. Oliver Wendell Holmes in his day mastered medicine and literature, but his brain was that of a genius. Imagine a man now practising both law and medicine, both theology and law, both medicine and dentistry! We would not expect him to be adept at any of it. Yet such is our law that we must first be an M. D. to become a D. D. S. Emerson, in writing on education, says "in so many of our schools knowledge and common sense are at warfare."

What would this renowned essayist say if his "shade" could visit one of our medical schools, listen to a lecture on eclampsia, visit a laboratory, look through the microscope at casts, carcinomata, and germs,—see salvarsan given in the infirmary, witness a gastro-jejunostomy, and when the pre-eminent shade is recognized and being called on for a speech, begins, "My dear young men, you are soon to become our physicians and surgeons," a voice from the audience will say, "No, no; we are going to be dental men." With that the eminent spirit disappears midst a vaporous mist.

THE ATTACK ON TYPHOID IN LYNCHBURG.*

By MOSBY G. PERROW, PH. D., Lynchburg, Va.
Health Officer of Lynchburg.

When the Health Department was reorganized in August, 1910, the most obvious problem that presented itself was the typhoid situation. As the gentlemen here are aware, Lynchburg had for years endured the unenviable distinction of being a typhoid town. Typhoid fever, the disgrace, the defect, and the scourge of modern civilization, had at times with only a part of the deaths reported risen to the ominous figures of 114 deaths per hundred thousand population. Were the true figures known

*Read before the Lynchburg Academy of Medicine, February 4, 1913.

only the imagination can follow the height to which they would climb.

On the first of August, 1910, a history card was prepared on which were printed the usual causes of spreading the disease, together with other data, for example:

Case No. Reported.....19.. Physician
..... Name Age....
Yrs..... Sex..... Color..... Resi-
dence.....St., Removed to.....Hos.
No. occupants in house—Male.....; Female.....
Occupation..... Employed when taken
sick Date onset of illness.....19..
Left city.....19.. Where to?.....
Returned to city.....19.. Premises connected
with city water?..... Water closet in
house?..... Yard?..... Privy?..... Location
..... Required on account of closet, sink, cess-
pool, privy or premises..... Water used
for drinking purposes..... Boiled.....
Location of well or spring if any..... Milk
used previous to illness purchased from.....
Bottles..... Action if any on account of milk
supply..... How is ice used for drinking
purposes?..... Were raw oysters eaten 21 days
prior to illness?..... Ice cream..... Where
purchased..... Raw vegetables..... Previous
case in house..... Recovery.....19..
Is former patient still in house?..... Is house
well screened?..... Is sick room screened?.....
Remarks..... Widal test.....
Result Investigator.

Self-addressed cards that needed no stamps were supplied physicians for reporting, and the physicians promptly and uniformly responded. Widal's were done to exclude any doubt of diagnosis. From the first of August to December 31, seventy-two city cases were reported. Practically all of those were in August, September and October. Sixty of the seventy-two, or 83.3 per cent, had privies adjoining and most of the sixty drank well water. The privies were without exception the old fashioned unprotected kind. Tack maps were made, and the tacks grouped themselves in the unsewered sections. The situation appeared plain. The disease was being spread largely by flies, and practically all of it was spread by flies, wells, or contacts. Now of course some of these cases may have been infected in various ways, but beyond any reasonable doubt flies ably assisted by wells and contact were the chief source of infection, and upon these the heavy guns of assault were levelled. Statistics kept up until today continue to show the same results. In 1911, 83.5 per cent had privies adjoining, and in 1912, 84. The closeness of agreement in the figures seems almost uncanny.

As just stated, the procedure was clear. The fly must be attacked, the privy contents screened, and then water and sewerage extended as rapidly as possible.

On October 12, 1910, the Council passed a stable ordinance, prepared by the Health Department, the substance of which was the effectual protection of manure from flies. In addition to this, inspectors sought throughout the city for any spot that would serve as a breeding place of maggots. On December 12, 1910, the Council adopted another ordinance requiring the construction of sanitary dry closets where no sewerage facilities existed. While this latter ordinance was being enforced, members of the Council had already become so impressed with the urgency of sewerage that the Sanitary Committee of the Council requested the Board of Health to refrain from enforcing the law in a large number of streets as these streets would soon be taken care of by sewerage. Seventy-five thousand dollars of a bond issue were set aside to be applied to extending sewerage. The Board of Health readily and properly acquiesced in the request. Nevertheless, in so many places has the Board refrained that not yet has sewerage been extended to a number of houses and, consequently, sanitary conditions are here as they were two years ago. Sewerage, however, is the only permanently satisfactory facility and, although the non-enforcement of the law in all localities so far may have resulted in additional cases of fever, in the end, the course pursued, in my judgment, will prove a wise one. To date 1,036 dry closets have been removed, being replaced in each instance by water closets, cutting down the total number of privies in the city in round numbers from 2,500 to 1,450, a feat in itself sufficient to exercise a powerful influence not only on typhoid, but on the entire public health. The year 1913 will probably see 500 more privies displaced.

When the history card has shown that the patient drank well water, the well has been carefully examined and the water analyzed. Evidence of pollution has been at once brought to the attention of the Council Water Committee, all the facts stated, and extension of the city mains urged, so that the wells could be closed. The Committee has not only in these individual cases responded with promptness and willingness, but so forcibly has it been impressed with

the necessity of supplying the city water to all consumers in the corporation, that it has hastened the laying of pipes even where no disease had developed. At present in Lynchburg are approximately 1,000 families, or 5,000 people, to whom city water is not accessible. However unimpeachable may be the purity of a public water, if the whole public is not supplied with it the effect is of course limited. No citizens of the town are more alive to the need of furnishing these people with water in the immediate future than the members of the Water Committee, and I believe the time to be short before every residence here will have opportunity of connecting with the municipal supply.

Right here a few words may be said regarding algae. It is accepted among water experts that they are not dangerous. In fact, at the recent International Congress on Hygiene a noted water biologist stated that algae are not a public health matter. A moment's thought will show the fallacy of this remark. While algae in themselves are not injurious to the health, yet people will not drink algae polluted water, and instead will drink any water that is clear and without odor. Of course this latter water usually comes from shallow wells and is oftentimes infected.

When the inspector goes to the residence of a patient to make out the history card, at the same time he takes along a circular which gives in the simplest language the real facts of the disease, what it is, how transmitted, and how to prevent the spread. In combating any epidemic it is always important to educate the public as thoroughly as possible, and thus, by giving the fundamental facts, scatter the myths and superstitions that commonly prevail in the popular mind. No part of the public is as ready for education, or, for that matter, as necessary to receive it, as that part immediately concerned with the disease. Here is an infected spot and a spot that may serve as a focus for an entire epidemic. Knowledge of a few facts may here prevent a tremendous amount of future work, trouble, and death.

The milk has been watched with particular care. The dealer supplying a house in which exists a case of typhoid has been notified of the fact and particular pains taken not to transmit by means of bottles. Boiling the bot-

tles at the house has been urged, and they are always boiled or steamed at the dairy. The family of the dealer has also been watched. Sanitary privies have been required on the dairy farms, together with the general improvements of a modern dairy equipment. No evidence has been found as yet of milk-conveying the disease. Market gardens have been observed, especially those growing lettuce and celery. Human excreta as a fertilizer have been prohibited on all market gardens. While oysters are noted on the history card, no evidence has pointed to oysters as a source of infection. The supervision of oyster beds is, however, an important matter, and properly belongs to the State Board of Health or the federal bureau.

The number of city infected cases in Lynchburg in 1911 was 85; in 1912, 56. No other records for an entire year are available. According to uniform statements, however, of physicians in the city, 1911 had much less typhoid than any previous year. As shown, 1912 is a distinct drop from 1911. As the years go on there is bound to be a gradual decrease. Some years may rise higher than a preceding one but on the whole the tendency must be downward. Our death rate per hundred thousand population last year was 29.3, the lowest in our record. In two years we ought to drop to 15, and ultimately, excepting what is brought in from surrounding territory, the disease should be eliminated.

The situation that now confronts us is this: On account of the dwindling of the number of cases from increased sewerage and city water and improvement in general sanitary conditions, spread by ordinary contact will become more and more important and the duty of the physician in preventing infection from spreading out of the sick room more and more imperative. Screening the sick room should be insisted on and disinfecting excreta gone over in detail with the nurse. The mode of disinfection as a rule should be that prescribed by the Health Department in order to avoid possible confusion on the part of the attendant. If the physician desires, the Department will furnish an agent to show the exact method of disinfecting and see from time to time whether the disinfecting is kept up regularly, and if necessary

will furnish free of cost all disinfectants. Disinfecting should be continued at least two weeks after apparent recovery.

A matter of great importance is disinfecting the urine, probably more important than even the feces. The bacilli can usually be driven from the kidneys and bladder in two or three days by the use of urotropin. Experts state that physicians should never fail to use this drug.

Whenever the physician wishes an immunity dose of typhoid vaccine, the Health Department stands ready to sell it to him at 25 cents, or give it free.

MIDDLE EAR DISEASES IN INFANCY AND CHILDHOOD.*

By E. G. SEIBERT, M. D., Washington, D. C.

Diseases of the middle ear in infancy and childhood present points for consideration that are of very great practical interest. It is a well established fact that a growing organ, with its abundant proliferation of cellular elements and its rich blood supply, is more liable to disease than the adult one, in which a certain amount of stability has been reached. The force of this statement is shown when one considers in contrast the frequency of pathologic processes in the middle ear and the development of the temporal bone. It is developed by ten centers, exclusive of those for the ossicles and the internal ear. Of these ten, one is for the squamous portion, one for the tympanic plate, two for the styloid process, and six for the petrous and mastoid parts. With this fact in mind, it is easy to understand, in connection with the above statement, the predisposition of the tissues adjacent to the middle ear to disease in the early life of the child.

Prevalence.—In an examination of the clinic records of the Manhattan Eye and Ear Hospital of New York City, Kopetzky finds 2,116 cases of children, ranging in age from a few days to eighteen years. He has tabulated and arranged them as follows:

DISEASES.	NUMBER.	PER CENT.
Otitis media purulenta acuta.....	710	33
Otitis media purulenta chronica.....	696	32
Otitis media catarrhalis chronica.....	281	13
Mastoiditis	97	4
Furunculosis	25	1
Deafmutism	27	1
Labyrinthine trouble	5	0.2
Cerumen	137	6
Sundries	128	6

*Read before the George Washington Medical Society, at Washington, D. C., October 16, 1912.

From this table it appears that 69 per cent of all the children applying for treatment suffered from middle ear suppuration, the mastoid being involved at the time of admission to the clinic about four per cent of times.

In autopsies from the Breslau clinic, Ponfick found, in one hundred cases, where death had been ascribed to various causes, that only nine showed normal ears. The ages ranged from one day to four years and both ears were involved 78 times and one side 13 times. He reports that his post-mortems demonstrated, aside from moderate enlargement of the spleen, that the ear alone showed pathologic changes and he concludes that otitis media may occur as an independent infectious disease capable of causing death. In an experience of over 10 years at the Lutheran Infirmary and out-door service of George Washington Hospital Dispensary, I am quite sure that the proportion of children to adults presenting themselves for treatment for ear affections will average fully three to one, and of these, 80 to 90 per cent were suppurative. These few statements go to show that in the early life of the child, diseases of the middle ear are frequent, and the autopsy records go further to show that they are more frequent than suspected, and that these children were undeveloped, marasmic, atrophic and undernourished.

Causes of Prevalency.—The underlying factors responsible for the frequency of middle ear diseases in children may be classified as follows:

1. The anatomic structure, referred to above;
2. General and constitutional disease, hereditary in character;
3. The exanthemata.

In considering the anatomic peculiarities of the ear of the infant, it is necessary to refer to the ear in a general way as to its parts. The ear is usually referred to as consisting of three parts, the external, middle and internal. The external and middle ear constitute the sound conducting apparatus and the internal ear the sound perceiving apparatus. The conducting portion embraces the concha, external canal, drum membrane, ossicles, tympanic cavity with its associated cavities leading into the mastoid cells on one side and the Eustachian tube on the other. The perceptive portion is made up of the entire auditory nerve, from its origin in the brain to its distribution in the labyrinth, the cochlea, vestibule and semi-circular canals constituting the labyrinth.

A characteristic difference of the Eustachian tube of the young appears both in its direction and length. The tube of the child ranges from 18 to 22 mm., while that of the adult is from 34 to 36. In the child the plane of direction is horizontal, while in the adult it inclines away from the horizontal. The lumen of the tube is wider in the young and as age advances, it grows narrower.

Many writers, among whom are von Troltsch, Boke, Gomperz, and others, have pointed out the fact that the middle ear of the new-born and very young contains more or less embryonal tissue that persists for a greater or less length of time, Gomperz especially showing the remains of this tissue in older children around the articulations of the ossicles, its character being such as to easily furnish soil for the propagation of invading micro-organisms.

In the very young, the upper wall of the tympanum presents a fissure (the petro-squamosal) situated between the petrous and squamous portions of the bone, extending backward as far as the mastoid antrum. It is traversed by a process of dura, which establishes communication between the lining of the tympanum and the cranial cavity. This dural process carries five branches of the middle meningeal artery for distribution along the upper wall of the tympanic cavity. This fissure closes about the fifth month of ossification until, later in life, the child presents only the petro-squamosal suture as the remains. As a route by which infection may travel from the tympanum to the cranial cavity, this fissure and the resultant suture are of importance. The lower wall or floor of the tympanum is a thin bony partition covering the jugular bulb. In the young it is a thin, transparent plate and in many cases the mucous membrane of the tympanum is in direct contact with the bulb, the intervening plate of bone being either totally absent or quite deficient. Many writers refer to this as of quite common occurrence under five years of age, and Bryant, Dench and others call attention to the possibility of puncturing the jugular bulb through this space while doing a paracentesis, cases of such accident being reported.

There is no mastoid process in the foetal bone. The first marked indication appears at the age of one year or a little over, by which time there has appeared a distinct bulging outward about the upper level of the tympanic ring. This

bulging progresses downward and somewhat backward until between the ages of three and four, the mastoid process has acquired the characteristics of the adult type. In this development, the opening of the canal for the facial nerve is on the outer surface of the petrous portion of the temporal bone. It is about opposite the middle of the tympanic ring and slightly posterior to it. Its location is such that if the ordinary incision for the complete mastoid operation were made, the nerve would be in great danger of division. This location explains why facial paralysis of the baby is caused by instrumental delivery. With the development of the mastoid, it begins to recede from the outer surface of the temporal and to be covered by the overhanging mastoid until in the adult it lies from 1.5 to 2 cm. within the plane of the outer surface of the mastoid process.

The lymphatic ring of Waldeyer is one of the most important factors of middle ear disease in children. This, you may remember, comprises the adenoid, in the nasopharynx, the faucial tonsils and closed below by a mass of lymphoid tissue at the base of the tongue called the lingual tonsil. In the child, the pharyngeal and faucial tonsil, so frequently diseased, constitute the primary focus of infection from which the tympanum is so frequently reached.

It has been shown that the eustachian tube is relatively wide and horizontal in direction. The nasopharynx at birth is merely a narrow passage running obliquely downwards and backwards from the constricted opening of the posterior nares, averaging from 5 to 7 mm. in height and 9 mm. in breadth between the pterygoid processes. The nasal cavity begins to increase in height directly after birth, increasing very rapidly during the first six months but more slowly during the rest of infancy.

At birth the opening of the eustachian tube is at the level of the hard palate. It remains at this level for nine months but later becomes distinctly higher. The nasopharynx is extremely vascular and there is an abundant supply of lymph glands and vessels. The lymphoid ring is often well developed at birth and this development becomes much greater during infancy.

Because of these anatomical facts, therefore, adenoids, either directly or indirectly through the colds they induce, are undoubtedly the most common cause of otitis media at this age. These facts explain the ease with which catarrhal pro-

cesses travel from the nasopharynx to the middle ear. Another explanation of the frequency of otitis media is the fact that an increase in size of even a small amount of adenoids usually blocks up the tube, obstructing ventilation and predisposing to infection. It is the experience of most otologists that repeated attacks of otitis media in children are invariably due to adenoids and that the attacks continue until the adenoids are removed.

It is a self-evident truth that any general disease that tends to lower resistance lays the child open to ear disease. Tuberculosis, syphilis, rickets, broncho-pneumonia, gastro-intestinal disturbances, all may have middle ear suppuration as a complication or sequel.

Kopetzky states that it is especially tuberculosis or syphilis in the parent that is distinctly of moment when considering the causes underlying the prevalency of ear diseases in childhood, the children themselves not necessarily being either tuberculous or syphilitic. In this connection it is of interest to note the report of Ostman who, basing his results upon the examination of school children in Marburg, Germany, determined that those families which included the relatively highest number of children with varying degrees of deafness likewise presented the relatively most frequent taint of tuberculous heredity.

In a like manner, the syphilitic dyscrasia is an important factor, so frequently seen in the children presented for treatment in our dispensaries. In many of them are seen the evidences of hereditary lues, the ear not presenting an actual syphilitic lesion, but the lowered resistance and physical degeneration affording a ready field for the spread of infection. As the pathway to infection of the ear lies through the nose, these children in many instances show a previous or present rhinitis that points only too clearly the way by which middle ear suppuration has been established.

The great frequency of the exanthemata in children, with the involvement of the ears in many cases, are thus in themselves important factors in the prevalency of middle ear diseases. Holt cites a report by Dowie of 500 cases of middle ear suppuration following the exanthemata; he reports that measles preceded the ear disease in 26 per cent, scarlet fever in 12 per cent and whooping cough in 15 per cent of the cases. Among the initial symptoms of scarlatina there

is very frequently a marked swelling of the adenoid tissue present in the nasopharynx and likewise the marked nasal involvement in the early stages of measles results in swelling of the nasopharyngeal tissues tending to blocking the secretions and infecting the tympanum as hereinbefore described.

Character of Infection.—That the activity of germ growth is reduced or suspended by the secretions of the entire respiratory tract is well established. Bacteriologic study long ago developed the fact that germ growth is dependent upon the character of the media and that but minute proportions of inimical substances are necessary to retard or inhibit development. It has also been well established that the secretions of the entire nasal tract (and for this purpose, this includes the eustachian tube and tympanum) are strongly inhibitory to germ growth when in a normal condition. When the normal condition is altered, however, this bactericidal power is rapidly diminished and the favorable conditions for bacterial growth correspondingly increased. That the tympanum is readily infected under such circumstances is easily seen, and many micro-organisms are to be found in causal relation to middle ear inflammations. The streptococcus pyogenes, the pneumococcus, the staphylococcus pyogenes, the pseudo-influenza bacillus, Fraenkel's pneumo-bacillus, the bacillus proteus, the tubercle bacillus, Friedlander's bacillus and others are met with as active factors. The reported order of frequency is as variable as the number of reporters, yet it seems, from statistics that the pneumococcus, the streptococcus pyogenes and the staphylococcus pyogenes albus and aureus are most often responsible in the order of their enumeration. In this connection it is well to recall that all of these organisms can be found in the healthy mouth.

This consideration of the character of the infection is important if we remember what Dench says, that "In order that the connective tissue structures of the vault may be invaded, it is necessary that the germ causing the infection should be one of considerable virulence, the less active varieties of infective germs not being sufficiently virulent to attack connective tissue structures." The early examination of the discharge from an inflamed ear will give us an idea of the amount of damage already done and some clue as to the course of the disease.

Pathology.—Hyperæmia is the beginning of the manifestation; following this is swelling of the mucous membrane so that its folds often fill the tympanum completely, shutting off communication with the atrium. Following this we have transudation of serum and migration of blood cells into the tympanic cavity. Variably, with this, we may have distention and perforation of the membrane with discharge of the tympanic contents. Depending upon the character of the inflammation, conditions may differ. In the simple catarrhal inflammation, transudation of serum and leucocytes does not take place, at least to the same extent, the tympanum being more or less filled with a thick, viscid fluid from the over-stimulated mucous glands, holding in suspension desquamated epithelial cells. In the catarrhal inflammation the discharge may cease at the end of a few hours to several days, the perforation closes and there is a gradual return to normal conditions. In the severer type, the invasion of the vault of the tympanum takes place, the connective tissue structures therein are attacked and destroyed, with early bone necrosis of the tympanic wall; the blood supply of the ossicular chain is cut off with resulting necrosis, usually of the incus first; spreading on to the antrum, and finally to the mastoid cells, the inflammatory stage has finally reached that of fully developed mastoiditis, with the further possibilities of intracranial involvement.

In children, the periosteum of the canal is loosely attached, especially along the superior posterior wall and is more or less directly continuous with the upper portion of the tympanic membrane, the membrana flaccida. Because of this, when evacuation has not taken place, the pus may burrow along the entire length of the wall, even making its appearance in the posterior auricular region as a soft, fluctuating mass. Usually, before bulging of the posterior wall has appeared, invasion of the mastoid cells has taken place, and this bulging is therefore an almost pathognomonic sign of mastoid involvement. Dench states that in children, where the purulent collection has dissected off the posterior wall of the canal and formed a post-aural abscess, the periosteum on the outer surface of the temporal bone may become detached unless the fluid is freely evacuated, and infection of the intracranial structures may take place, either through the mastoid-squamous fissure, which remains open for a considerable period after birth,

or a localized caries or necrosis of the squamous portion may take place on account of interference of the blood supply, and direct infection follow.

Symptoms.—The symptomatology of middle ear disease is variable, depending upon the character of the inflammation, the age of the child and other existing circumstances. One of the most characteristic features is the sudden and excruciating pain deep within the ear. This may be the first note of warning. Usually, the child wakes late at night or early in the morning, crying with the pain. In some children, especially infants, where the pain sense is not fully developed, a convulsion will be the first indication of anything wrong. In others, uneasiness, restless sleep, tossing the head about or boring into the pillow with an occasional cry of pain, accentuated by the least movement, or touching the side of head or ear. Accompanying this there may be a sharp rise of temperature, and occasionally symptoms of intra-cranial irritation. In older children, we may get, in addition to the pain, marked reduction of hearing, dizziness, or a marked tinnitus may be complained of.

Kopetzky believes that in very young infants a gastro-intestinal disturbance, due to absorption of toxins from the ear, is a characteristic feature, manifested by increased stools, with or without vomiting.

These symptoms continue for a variable length of time, with greater or less intensity until the discharge appears, when there is usually cessation of pain and reduction of temperature. It must be remembered, however, that in some instances perforation of the drum does not take place but the discharge appears in the posterior nasal chamber from the eustachian tube. Jacobi believes that the drum of children is thicker and more resistant than the adult. It does not appear so to me as I think that the more open lumen of the tube is responsible for the discharge appearing in the nose. Usually, however, there is a rupture of the membrane and the discharge appears in the meatus. This may vary in character, in some cases it is serous, in others thick and viscid. When it first appears, it may not show a purulent character, but soon, within twenty-four hours it takes on the purulent character, dependent upon the infecting organism. In other cases, involvement of the mastoid cells may have occurred before the appear-

ance of the discharge, in which case there is usually a decided increase in the severity of the symptoms. The location of the pain may change from the ear to posteriorly or become general over the entire side of the head. With this, there are usually recessions and exacerbations of temperature, the septic type, and frequently accompanied by chills.

The diagnosis of the condition after the appearance of the discharge presents no difficulty. It is of importance that it be recognized early in order that mastoid involvement may be prevented if possible. Dench states that it is the rule, in the very early stage, that that portion of the membrane lying above the short process of the malleus, is the only part that presents any departure from the normal. Close inspection will show that it is distinctly congested, presenting a deep, dull red color, indicating a high degree of venous engorgement of the underlying structures. I have never had the opportunity to confirm this in children, but have in adults numerous times. This is the time for paracentesis, and when promptly done, markedly lessens the severity of the attack. In two of my cases, the attack was aborted, all symptoms promptly disappearing.

When seen later, there is general redness, the long process of the malleus being hardly discernible; the membrana flaccida is pushed forward and somewhat downward. The membrana tensa may be bulging forward presenting a sharp indentation marking the position of the malleus handle. With this, there may be more or less swelling of the entire canal, with bulging of the superior and posterior portions. These appearances, coupled with the symptoms previously given should leave no difficulty in diagnosis.

The *course* of the disease is dependent upon the character of the infection, as before pointed out, the age and general condition of the patient, and, sometimes, on the treatment. I have seen a discharge, in the ear of an otherwise healthy child, with bacteria demonstrated in it, clear up and disappear within ten days. I have seen others in which the discharge has continued for months and even years.

To discuss all the complications that may arise in the course of middle ear disease would too greatly prolong this paper. The way has been pointed out how intra-cranial conditions can develop. These are only too frequently

seen and when they do occur, the gravity of the case is increased many times.

Indications for Mastoid Operation.—What are the indications for the mastoid operation in involvement of the middle ear? This is sometimes a perplexing question. You have all seen and treated cases of earache in children, and have also taken care of them after suppuration has been evidenced by discharge. You have also seen this discharge and all the other symptoms subside and complete recovery take place. Again, you have had cases where the expected favorable turn of symptoms did not take place, but rather an increase in the severity ensue. Even among otologists there is diversity of opinion as to what constitutes positive indications for operation on the mastoid in cases of middle ear disease. The following conditions, however, may be said to be the most reliable to guide us in this determination:

(a) Sudden cessation of the aural discharge, the other symptoms persisting.

(b) Deep seated pain in the mastoid region; mastoid tenderness, to pressure, extending over an area well beyond the limits of the antrum.

(c) Any sharp rise of temperature, especially if accompanied by chills, or followed by quick recession to normal or sub-normal and again followed by a rise to or beyond the previous maximum limit.

In the absence of fever, the above symptoms which do not yield to abortive measures in from 24 to 48 hours.

Marked increase in the leucocyte count, especially if accompanied by the septic type of temperature.

Bulging of the posterior wall of the external canal is considered by many of the most prominent otologists as indicative of pus retention in the mastoid antrum and mastoid cells, and, therefore, indication for operation. It has considerable value, however, if we remember the continuance of the membrane of the epi-tympanic space with the periosteum of the external canal in this situation, and, furthermore, that, in the living subject, the vault is more or less shut off from the lower portion of the tympanic cavity by the following structures: the neck and short process of the malleus, the lower angle of the body of the incus, the anterior, posterior, and external ligaments of the malleus, and the folds of mucous membrane covering them. With the membrane swollen, there may be complete

exclusion of the contents of the epi-tympanic spaces from the lower tympanic cavity and pus retained here would certainly follow the lines of least resistance which would lead it into the antrum and from thence into the mastoid cells. The further accumulation of pus would then tend to follow the plane of the periosteum as before mentioned with the resultant bulging of the posterior wall of the external canal.

The *pro* and *con* of this question is hardly worth while discussing at this time. Certain it is, however, that when present, mastoid involvement is usually found, though I have had two caess wherein it was present, but because of absence of other factors, operation was not done and complete recovery ensued. The anatomical feature makes it, to my mind, a sign of very great value, though not infallible.

To recapitulate, we find—

Sudden cessation of discharge,

Deep seated pain with mastoid tenderness,

Septic temperature and chills,

Leucocytosis,

Bulging of posterior-superior wall, together give a combination that would certainly justify operation:

Treatment of Middle Ear Disease.—This, in itself, would furnish material for a complete paper. I shall, perforce, because of limitation of time, and fearing that I have already taken up too much of your time, confine myself to the treatment, in particular, of acute suppurative otitis in children.

It has been established beyond all question that early paracentesis is the best possible procedure in combating middle ear inflammations, whether in the infant, the child or the adult. Having in mind the peculiar anatomic characteristics of the child's ear, paracentesis offers no other dangers, even to hearing. The closure of such an opening is, in most cases, quite rapid, sometimes too much so, so that it has to be done again, and I have opened drums as often as three times. The spontaneous opening heals much less readily. After the establishment of the drainage, as evidenced by the discharge, the treatment of the ear externally is cleanliness, with the use of mild antiseptic solutions, instilled after free washing. It has been before mentioned that in simple catarrhal inflammation, the secretion may be serous; when so, it is frequently not infected, and may be kept so if it can be handled by the surgeon or a competent

nurse. You can all see, however, how the attention given by members of the family would produce infection. After paracentesis, I have employed suction by the Siegel otoscope and syringe, to withdraw fluid from the middle ear. Some surgeons use inflation by the Politzer bag for this purpose, but to me it always presents the danger of forcing purulent material back into mastoid cells. With the head inclined well forward, it is possible to draw into the external meatus at times quite a considerable quantity of fluid. It is in this situation, when there is no demonstrable infection, that hydrogen peroxide may be used; it has at times a decided beneficial effect and when diluted one to three of water, is not irritating and with its use, the inflammatory symptoms quickly subside. I wish to register my emphatic opinion, however, that at no other time should peroxide be used in the ear, that is, after suppuration has commenced, for, with the well known effervescent action, infection can be, and has been, carried deeper into the accessory structures and increasing the gravity of the case. Painting the mastoid region with tincture of iodine often brings decided improvement; likewise, the application of a small mustard plaster in the same place, or Bier's hyperæmia, provided you have the apparatus. It seems superfluous for me to offer any advice as to the general systemic treatment, yet I cannot let this opportunity go by without saying a word for the old time laxative, castor oil. By its prompt action, there is frequently an immediate lessening of the congestion of the entire respiratory mucous membrane and this has a decided benefit upon the inflammatory process in the ear. After suppuration is established, a solution of formaldehyde, 1 to 500, frequently produces rapid subsidence of discharge and symptoms. I use frequently a solution containing 1 per cent menthol, phenol, and resorcin in diluted alcohol. Several drops instilled into ear, after cleansing. In those cases where there has been extensive destruction of drum with probably some bone necrosis because of more intense reaction, diluted tincture of iodine will effect a cure when all other methods have failed. I do not use powders; I have done so, but the accumulative effect of powders has been harmful in my hands and I have abandoned their use. When the discharge, in spite of all local treatment, is profuse and persistent, indicating deep infection, then the only course is to open the mastoid process

and remove all necrosed bone and granulations. Internally, I feel sure that hexamethylen has demonstrated its efficiency. Its presence in the secretion of the entire respiratory tract has been demonstrated. I have used it enough to know that in these inflammations it does, in the majority of cases, lessen the intensity of reaction and symptoms. After an experience of some three or four years of its use, I have seen but few cases in which it seemed to cause irritative symptoms in the urinary tract, and these could be readily controlled by the use of a mild alkali like sodium bicarbonate. Other than these irritative symptoms of the genito-urinary tract, I have never seen any untoward results from its use, giving it in ten grain doses as often as four times daily. Some reporters have stated that they have given as high as seventy-five grains daily without harm. I believe that hexamethylen is especially advisable after the exanthemata as a prophylactic. I believe the time will come, when the continued use of this drug for a greater or less length of time will be advised by all after these diseases of children. It is during the emaciation that follows the exanthemata that middle ear disease develops, because, as before pointed out, the bactericidal power of the secretions of the upper respiratory tract is much diminished. That hexamethylen is effective in taking the place of this lost power is fairly well demonstrated, and as its use does not seem to be harmful, its employment for this purpose is logical. Along with this, tonic and supportive treatment, together with outdoor life will do much to prevent the occurrence of middle ear disease in these cases.

In closing, it may be well to remark that nowhere is the old saying "an ounce of prevention," etc., more applicable than in these cases. It is the general practitioner who sees them first, and to him I repeat what I have already said, that early paracentesis when indicated, is the best possible procedure.

1545 *Eye Street, N. W.*

STAINING TUBERCLE BACILLI IN URINE.*

By M. D. HOGE, JR., M. D., Richmond, Va.

To stain and find tubercle bacilli in sputum of patients suffering from tuberculosis is a comparatively mechanical and easy matter in most instances, but when they are sought for in a

complex fluid like urine, it is not so simple and speedy as the text-books and writers on the subject would suggest, because, if their methods are followed, you would seldom succeed in finding them.

The chief difficulty lies in getting rid of practically everything else but the bacteria, because they will not take the stain if mixed with urea, the various salts and other products of used-up metabolism. Another impediment is that, in tuberculosis of the bladder and kidney, no matter how abundant pus may be, the tubercle bacilli never seem to be present in large numbers, except occasionally;—this I have repeatedly verified by finding very few on a great many slides prepared at the same time.

After trying various methods, the following has proved to me most satisfactory. The main objection is that it is very time-consuming, but the results justify the trouble and labor expended.

First, to the pus-containing urine is added a few drops of carbolic acid in a conical sedimentation glass. This is done for two reasons: It prevents putrefactive changes by the development of other germs in an excellent culture medium, and it also seems to assist the stain later on. After the urine has stood for six hours, the supernatant fluid is carefully poured off, and the sediment pipetted into centrifuge tubes; distilled water (free of acid-fast bacilli) and alcohol 95 per cent, one volume, is added to dissolve out the salts, etc. The sediment must be washed this way four or five times in order to get rid of all traces of urine.

The small residue in the end of the tube is then spread on a slide, to which is added a drop of egg-albumen, allowed to dry in the air, flamed three times, stained with carbol-magenta, decolorized in the usual way, and counterstained with Löffler's methylene blue.

As stated above, it is advisable to make several slides, examine them long and carefully, and even then you may not find them,—because possibly there was some mistake in the method or, what is perhaps more probable, they are not there.

Three precautions are to be observed: the distilled water must be above suspicion; the smegma bacilli, which are found in both the male and female genitalia must be excluded, and, finally, *all* patients having tubercle bacilli

*Read before the Richmond Academy of Medicine and Surgery, April 8, 1913.

in the urine are not necessarily afflicted with tuberculosis of the genito-urinary track.

308 East Grace Street.

THE HYPODERMATIC USE OF PHENOL-PETROLATUM IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

By SEVIER WARREN, M. D., San Angelo, Texas.
M. R. C., U. S. A.

To claim that any drug or mode of treatment is a cure for tuberculosis one must necessarily have the data and statistics covering a reasonably long period to substantiate that claim.

It is this fact, alone, which precludes my making so bold a claim—for the success that I have had, and the almost miraculous changes observed in the clinical picture of the hopeless cases that have come about after the short periods of treatment with the phenol-petrolatum of a one-half per cent., given hypodermically, almost tempts me to claim for it the cure that it seems to bring about after a three or four months treatment.

Bacteriologically, my findings in the blood changes and the absence of bacilli from all secretions is proof positive that I not only get an arrest of the pathological conditions, but that I actually get a return to a normal physiological and an upbuilding process.

The clinical picture is so markedly changed in the cessation of the cough, the disappearance of the fever, the increased appetite, the gain in weight and, in fact, the obliteration of the hopeless and pathetic picture that these unfortunates present, that it almost tempts me to boldly assert and proclaim this simple remedy as the cure for tuberculosis.

However, as I say, my records and observation of cases have not covered that period of time which is essential, and a necessary proof to back up one's claim to the credit for the cure, for which the scientific world has labored so earnestly, and seemingly so hopelessly.

My object in presenting this treatment to the profession at this time is to invite a co-operation in the study of this remedy by scientific men and institutions interested in the treatment and cure of pulmonary tuberculosis; and that sufficient data and statistics may be gathered to prove its effectiveness in bringing about a cure for all times—under any climatic advantages or disadvantages—in contra-distinc-

tion to what we term an arrested cure that is sometimes obtained in the early stages.

Also in this connection I wish to say that the chemists who have so generously furnished me with the phenol-petrolatum have assured me that they will be only too glad to furnish the proper quantity to any of the profession who are prepared to give it a scientific investigation and study. Upon request to me I will notify them and have the preparation forwarded at once.

It also might be well to interpolate here that phenol-petrolatum of a one-half per cent. is given in ascending doses—the initial dose of two minims being increased one minim daily up to the maximum of fifteen minims daily. It is best given inter-scapular into the deep tissues, and the treatment should be kept up for from two to three months. The treatment is absolutely painless and there is no danger whatever of an abscess. The only contra-indication to its administration is a nephritis, and, of course, upon the appearance of carbolic in the urine the treatment should be discontinued for the proper interval.

Before beginning the treatment, I pursue the usual course in making the physical examination. I also make a haemoglobin estimate, a red and white count, and a differential. This is very important because it gives one an insight into the progress of the case, as well as being most instructive.

Those of us who rely so much on the microscopic findings in making our diagnosis and prognosis will recall at once the characteristic picture that presents itself on the microscopic inspection of a blood smear from a tubercular patient—the field filled with the debris from the disintegrated leukocytes, the vacuolated appearance of the reds, due to the destruction of the haemoglobin, and which so frequently misleads the novice in the hunt for plasmodia in the unstained specimen.

To observe the change from time to time in this picture during the administration of phenol-petrolatum cannot but give to the microscopist anything but the most intense satisfaction. Then, as he makes his leukocyte and differential count from time to time and notes the rapid increase in numbers, and the lack of debris, doubtless the same query will suggest itself to him as it did to me—what physiologi-

cal changes are taking place to account for this immunity from death of the leukocytes?

In my research work and experiments upon guinea pigs this microscopic change was the first and most important problem that confronted me for solution—and in fact appealed to me as the key to the therapeutic action of phenol-petrolatum.

Did the leukocytes enjoy this immunity from the carbolic or the petrolatum?

This could of course only be determined from further experiments.

It was obviously impossible for me to try out the carbolic alone so by way of differentiating I tried the petroleum alone.

This gave me the leukocytosis, but not the immunized leukocyte as could be determined from the debris present in the field. It therefore followed that the immunity came from the carbolic which is really held in suspension—its escharotic properties being destroyed, although it does not enter into a chemical combination with the petrolatum.

Here, also, I wish to call attention to an unusual occurrence or fact developed in my experiments with phenol-petrolatum on the pig. All pigs, while seemingly healthy in every particular and normal during the administration of the phenol-petrolatum, have remained absolutely sterile and not one has given birth during the series of experiments or since.

I make mention of this seemingly induced sterility as I will of another interesting therapeutic effect of petrolatum which I was able to demonstrate. To my knowledge liquid petrolatum has never as yet been studied or experimented with hypodermatically, and what may be developed and brought out, in my opinion, will prove it to be of the greatest therapeutic value.

I have been able recently to demonstrate its value as a local treatment for infected wounds and its apparent action generally as a prophylactic against systemic poisoning following the bite of what is known as the hydrophobia or mad cat.

Living about three miles from this little city as we do, and in close proximity to the wilderness of the western plains, it is quite a common occurrence for our barnyard to be visited by a cavote or a member of the skunk family. Of this family there is a small type

known as the hydrophobia or mad cat that kill by fastening upon poultry or small game about the body or beneath the wing. A fowl bitten in this way does not die immediately, but will live from one to three days—to invariably die. I am told by old practitioners in this country that it was not an uncommon occurrence in the old days for cowboys to be bitten by these small skunks—when sleeping on the ground. They were always bitten about the face or hands, and the bite was as dangerous to life as that of the rattle snake, and usually as fatal.

To return to the experiment which I was able to make. After losing a number of chicks from the frequent visits of one of these most vicious and persistent little animals, and after having treated several of the bites with permanganate—after the usual method for a snake bite—it occurred to me to try hypodermatic injections of the phenol-petrolatum. Not only did it prove effective, but what proved of the utmost value to me were the blood changes which were brought out in the study of slides taken from the chick during and after the administration of the phenol-petrolatum.

These observations are simply noted here in passing to impress upon you the remarkable, and heretofore hidden therapeutic values of petrolatum. Later on this data will be presented in a tabulated form in the further study and reports upon the use of petrolatum.

However, I cannot too strongly recommend the local use, hypodermically, of phenol-petrolatum in any infected wound or bite from a rabid animal.

To return to the use of phenol-petrolatum in the treatment of pulmonary tuberculosis, I wish to say that it has proven so extremely interesting and promises so much, both in research work and clinical demonstration, that I will not attempt to go into the work that I am doing—and expect to do—a resume of which I hope to give to the profession in a few months, but again I would say to those who are interested in this special work or who are equipped for experimental work that I would appreciate their co-operation and any data they may wish to give me.

Also, it will give me pleasure, as it will the chemist, to furnish the phenol-petrolatum with directions as to its proper use in so far as I have been able to demonstrate.

That it will be an inexpensive treatment, a simple treatment, can be readily seen. For my own part, I will be only too glad to have the profession give it a fair trial, and I feel that I am quite warranted in saying that it offers more hope, both to the profession and to the poor unfortunates who face utter hopelessness, than any thing that has previously been held out to them.

Proceedings of Societies, Etc.

RICHMOND ACADEMY OF MEDICINE AND SURGERY.

The regular semi-monthly meeting, April 8, 1913, was called to order by the President, Dr. J. Shelton Horsley; Dr. Mark W. Peyser, Secretary and Reporter.

Dr. Chas. M. Hazen read a paper entitled

Physical Therapeutics in Anterior Poliomyelitis.

He discussed the various names by which the disease is known, and proposed the term "Acute Central Infectious Paralysis." The wide-spread pathology of the disease compels us to recognize that we may have symptoms and sequelae not limited to lesions of the anterior gray, such as spastic paralysis, and even epilepsy, and death from respiratory paralysis.

The treatment should in all stages favor *rest* and avoid over-stimulation. Physical methods of importance in the acute stage are the hot pack and the lateral or prone position; in the after-treatment, massage, electricity, mechano-therapy, hydrotherapy, prosthetic appliances and exercise. Surgery should come subsequent to careful preliminary treatment and surgical measures should be followed by physical therapy. This should be continued throughout the growing period of the child, looking to keeping the spine straight and the afflicted members in the most favorable condition.

DISCUSSION.

Dr. Chas. H. Jaeger, invited guest, of New York, agreed with Dr. Hazen that prophylaxis is one of the most important points to be considered; also in advocating that neither massage nor electricity should be administered too early in the disease, so that nerves and cells not completely degenerated may be conserved. For that reason, for a period of six months after

recovery he immobilizes the patient on a frame and wraps the limbs in very thick layers of cotton to keep them warm. During the acute stage he relieves spinal congestion by the use of counter-irritants, and applies ice-bags, also giving active cathartics. It is important that the immobilizing frame have a foot-board to prevent the covering pressing down the feet by its weight.

Dr. Mark W. Peyser called attention to the use of gymnastics while the patient is supported in a warm bath, as advocated by T. A. Williams, movements in this medium being made more freely than otherwise; and to the employment of the galvanic current in the early stages, it being not stimulating, but tending to restore the diseased nerves and cells, also recommended by Dr. Williams.

Dr. A. G. Brown said that the use of twenty-four names for the disease shows how varied are its manifestations. As said by Dr. Hazen, the term anterior poliomyelitis does not accurately explain the course and pathology of the disease. Strictly speaking, it is not a change in the anterior portion of the cord; the order in which the structures are affected are meninges, cord-substance and fluid, the process being first inflammatory, then degenerative. Dr. Brown went into the history of the disease—the earliest known epidemics, the first description, the number of known cases, experimental matter and bacteriology.

Dr. Hazen, closing the discussion said, that as he touched only those points in pathology that would elucidate the treatment outlined, he would not discuss other subjects brought out but that he does not agree with Dr. Brown. In every nervous disease, his first injunction is rest, then more rest; and with that enforced, he can afford to do without some other measures.

Dr. M. D. Hoge read a paper entitled *Staining Tubercle Bacilli in Urine.*[†]

Illustrated Catalogue. The seventeenth edition of this catalogue issued by W. B. Saunders Company, publishers, Philadelphia and London, describes nine new books and ten new editions not described in the previous issue. These books treat of subjects being daily discussed in medical circles. Any physician may obtain a copy upon application to the company.

[†]For paper by Dr. Hoge, see page 65.

Analyses, Selections, Etc.

Causes of Glycosuria.

Thos. B. Fitcher Baltimore, in an article entitled *Recent Advances in Our Knowledge Concerning the Causes of Glycosuria*, relates the functions of the pituitary body as follows. Anterior Lobe. 1. It influences growth. If a hypersecretion (hyperpituitarism) occurs during the years of the individual's growth, gigantism results. If the hyperactivity occurs after the individual's full growth has been attained then acromegaly results. If a diminished secretion (hypopituitarism) occurs, a form of infantilism results, to which attention was first drawn by Fröhlich. This condition is known as Fröhlich's syndrome, or "dystrophia adiposa genitalis." It is characterized by small stature, amenorrhea in women, infantile genitalia in both sexes, hypertrichosis, excessive deposition of fat and increased carbohydrate tolerance.

2. Injections of extract of the anterior lobe cause an increase in temperature.

3. Extract of the anterior lobe increases thyroid function.

Posterior Lobe. 1. Its extract causes an increase in blood-pressure.

2. It is a powerful diuretic.

3. It has a remarkable influence over carbohydrate metabolism.

4. Schaefer and Vincent think it also contains a substance that may lower blood-pressure.

5. Rinon and Delille think that the extract stimulates the function of the adrenals and lessens that of the thyroid..

As to the causes of glycosuria, Fuchter comes to the following conclusions.

1. It is unwise, from past experience, to accept as settled any new theory advanced to explain the cause of diabetes mellitus.

2. It must now be accepted as positively proved that not only the pancreas but also the adrenals (chromaffin system), thyroid, parathyroids and pituitary have a very important influence on carbohydrate metabolism.

3. Although lesions of the pancreas have been found in a considerable percentage of cases of diabetes, it is now clear that morbid changes in that organ will not explain all cases,

even when alterations in the islands of Langerhans are also taken into account. The essential and primary disturbance may be in one or another of the ductless glands.

4. There is undoubtedly a marked correlation of the internal secretions of the ductless glands. Thus the internal secretions of the adrenals (chromaffin system) and pancreas mutually retard each other. The most recent theory concerning carbohydrate metabolism is that first advanced by Zuelzer and supported by many physiologists. According to this view, one of the important functions of the adrenals is to "mobilize" or set free the carbohydrates in the liver and, possibly, in other storehouses also. Under normal conditions, however, this influence is counteracted or exactly balanced by the hormone contained in the internal secretion of the pancreas, and we have a constant flow of sugar from the liver. When, however, the chromaffin system is for any reason overstimulated, as it may be through the sympathetic nervous system, there is an overproduction of the "accelerator" hormone of the adrenals; the "retarding" hormone of the internal secretion of the pancreas is more than counterbalanced, the glycogen in the liver is rapidly "mobilized" or set free and a hyperglycemia and glycosurin result. A similar result occurs in the cases of the so-called pancreatic diabetes. Here the adrenal hormone may be normal in amount, but owing to the pancreatic disturbance the pancreatic hormone is diminished or absent and again the adrenal hormone is enabled to mobilize the glycogen of the liver.

5. A somewhat analogous explanation may be subsequently found to explain the glycosurias in pituitary and thyroid diseases.

6. The theory that hyperglycemia results from deficient consumption or oxidation of glucose in the tissues has fewer adherents than formerly. It may still be shown, however, that Cohnheim's theory is in part correct. At present, the trend of opinion is in favor of the view that the hyperglycemia and glycosuria are dependent on overproduction of sugar in the liver as expressed in conclusion 4.—(*Journ. American Med. Association*, Dec. 21, 1912.)

Syphilis.

This disease, because of its universality, its protean manifestations, and its simulation of

infections of other organs, simulation so close as to lead many times to diagnostic errors, has had accorded to it a supplementary part of the *Proceedings of the Royal Society of Medicine* (Vol. V., No. 1, Supplement), Mr. Moore dealing briefly with the tendencies and prevalence of the disease from the past to the present day, Mr. D'Arcy Power with the treatment of the disease, and Mr. Mott with the relation of the disease to public health.

In his opening address, Sir Henry Morris notes that among 10,000 Egyptian skeletons there were no traces of syphilis in a single instance. Moore recalls the fact that the poem of Hieronymus Fracastorius, published in Verona in 1530, gave the disease the name by which it is now recognized—Siphilus, a shepherd, being afflicted by the sun-god because of blasphemy. It is asserted that the proof as to the importation of the disease from America is still wanting, the fact being quoted on the authority of a well-known anthropologist to the effect that many thousands of pre-Columbian skeletons from all parts of America had not shown a single case of syphilitic lesion. Elliot Smith notes that all the cases described as syphilis in ancient Egyptian bones up to August, 1908, were examples of the destructive work of necrophilus beetles which had attacked the bones in the grave long after burial. Three scholars of wide fame have asserted that in classical writings there is not the least syllable that could properly be applied to syphilis. Nor is there any evidence that mediæval literature contains such reference.

D'Arcy Power, dealing with treatment, accords the modern arsenical preparation second place to mercury, regarding them as adjuvants. He believes that the drug is most efficient in the early stage of the disease, recognizes the prophylactic value of the 30-per-cent calomel ointment and lanolin, and advocates administration of mercury by intramuscular injection.

Mott believes that it is impossible in England to arrive at any definite conclusions regarding the prevalence of syphilitic infection among the population. Likewise it is impossible to arrive at any conclusions relating to the frequency of the incidence of diseases of the nervous system caused directly or indirectly by syphilis. In contrast to this is Blaschko's opinion that in Berlin every man who reaches the age of thirty

has (on the average) had gonorrhea twice, and every fourth or fifth man has had syphilis.

Douglas and Melville point to the fact that the number of recruits annually rejected from the army for venereal diseases shows a great and steady decrease in syphilis, from the appalling figure of 16 per 1000 to 1.5 per 1000; whereas there is a steady persistence of other venereal diseases at the level of about 2 per 1000 for the last forty years, rising in the last five years to 3.5, and still apparently increasing. By these figures they conclude "a decrease of all venereal diseases to a quarter of its former bulk, the whole decrease having occurred in syphilis."

It is stated that there are many facts which suggest a certain form of virus with a neurotoxic action. It will be remembered that Kraft-Ebing strongly supported the view that if there were no syphilis there would be no general paralysis, that in support of this he caused to be inoculated with a hard chancre nine persons suffering from this disease, who had never shown any signs and gave no history; not one of these was infected, for they showed no signs although they were watched for a considerable time. It was concluded they had an acquired immunity. There is cited the instance by Brosius of seven glass-blowers suffering with chancre of the lip, and out of five who came under observation ten years later four suffered with either tabes or general paralysis.

It is held that a race long syphilized is, on account of a racial immunity, more liable to suffer with the late degenerative forms. Lambkin reported in regard to the syphilization of the natives of Uganda, showing how severely a race previously free from this disease suffers from malignant skin, bone, and visceral disease, while parasymphilitic affections are rare.

In regard to heredity Fournier remarks the birth of healthy children is "no free pass for future offspring," and instances cases in proof. It is noted that in about 20 per cent of juvenile general paralysis the father has died in an asylum of general paralysis. In sixty cases of juvenile general paralysis Mott has met with no instance in which the mother died of this disease. In other forms of insanity due to neuropathic taint the mother transmits twice as frequently as the father, and daughters are affected twice as frequently as sons. When parasymphilis in the form of general paralysis or tabes affects

the male, and the wife is not syphilized, the number of living children is not greatly diminished below the normal average. If, however, a married woman is tabetic or paralytic, the reverse is the case. Twenty-four tabetic women who were married or had cohabited had only three living children, 19 born dead, and 32 miscarriages. Ten of these 24 were sterile. Now of 54 married male tabetics or taboparalytics 151 children were born alive, 75 were born alive and died in infancy, and there were 52 miscarriages or born dead. Kron's observations upon 184 public prostitutes showed that 14 per cent of those syphilitic prostitutes who had reached the age of 25 were tabetic, although the text-books teach that tabes occurs much more frequently in men than in women; this probably on a rigid examination would prove not true.

Mott holds that there is not the slightest question but that if congenital syphilis were not so fatal to infant life the number of people suffering from brain disease from this cause would be appalling. The question of public importance is, does syphilis contribute to a considerable extent to the production of idiocy? Binswanger, whose statistics have been based upon a large number of idiots, gives 9.5 per cent as certain and 12.2 per cent probable of one of the parents. Similar results were obtained by Wildermuth. Ziehen gives 10 per cent demonstrable, and a further 17 per cent probable. A much less percentage is given by Bourneville, Langdon Down, Shuttleworth, Telford Smith and Brown. However, the examination of the blood-serum of idiots by the Wassermann reaction tends to confirm the higher percentage of the German statistics. An important distinction of parasyphilis from syphilis of the nervous system is that the latter does not give a positive Wassermann reaction of the cerebrospinal fluid except in a comparatively few cases, less than 20 per cent; whereas general paralysis gives it in nearly every case (97 per cent), and tabes in about 60 per cent. No matter how long after the primary infection the onset of the disease occurs, the reaction is intense. The time between the primary infection and the onset of the disease is, on the average, ten years.

It is strongly urged that all infants born of parents who are syphilitic, or who are suspects, whether the infant presents symptoms or not,

should be examined by means of the Wassermann reaction, since it has been shown that many die of convulsions, meningitis, and hydrocephalus in early life or, later, develop optic atrophy, deafness or juvenile general paralysis. Moreover, an estimate of the amount of latent syphilis and its influence in the modification of the effects of syphilis on the race could then be arrived at.

Mr. Jonathan Hutchinson states that a test of the patients treated systematically and regularly by mercury has shown a radical cure in the great majority of instances. Accepting the evidence of the Wassermann reaction, he states that 70 per cent of cases were cured by mercurial treatment with pills.

Harrison is quoted to the effect that after seven courses of injection with "Lambkin's mercurial cream" a positive Wassermann reaction was still obtained in no less than 55 per cent, and that of 111 cases treated by various methods 64 were still "positive." It is concluded that the exact form in which mercury is administered makes little difference, that "the therapeutic effect is practically independent of the form of administration."

Hutchinson holds that there is not the smallest scientific reason to be adduced in favor of the many elaborate systems of treatment with varying numbers of injections interspersed with oscillating intervals. The important point is, when mercury alone is relied on, to keep the patient steadily under its influence for a long time, not less than two years, and the simpler the method of giving it the better. Hutchinson further states that there is abundant evidence that after two intravenous injections the Wassermann reaction remains negative in most cases, from which we may assume that a complete cure has been effected. Granted that mercury achieves the same end if properly administered, in about 70 per cent to 80 per cent, nothing is more certain than that it takes a long time to do so, that whatever form is employed the Wassermann reaction will remain positive for many months. Hutchinson therefore maintains that in every case of early syphilis we are bound to advise the patient to undergo two intravenous injections of salvarsan, whether they be followed by a course of mercury or not. In late cases of syphilis which have resisted mercury and iodide, salvarsan is generally suc-

cessful, though in true leucoplakia salvarsan fails. Congenital cases are, speaking generally, more resistant to salvarsan than acquired ones; indeed, in some it appears almost impossible to obtain a negative Wassermann reaction. It is stated that the mercurial treatment of syphilis was familiar in India in the tenth century, A. D.; that it was unknown in Italy and England before 1490. There was evidently no syphilis among Boccaccio and Chaucer's contemporaries. Hutchinson observes that Timon of Athens, in which there is a striking picture of the effects of syphilis, was a late play of 1608, written by a bitter misogynist who had passed through a period of grave mental and probable physical trial. He ventures to suggest that a satisfactory explanation may be found on the theory that Shakespeare himself was suffering from syphilis.

As to the prevention of syphilis, McDonagh believes that it would be useful to teach all boys the danger accruing at extra-matrimonial intercourse, and that abstinence therefrom does in no way endanger their constitution or detract from their manliness, and to advocate temperance and healthy sport. He would also make venereal disease a notifiable disease.

French states as a fact that in conjunction with alcohol, syphilis is responsible for 27 per cent of private and 31 per cent of pauper male admissions to lunatic asylums in the United Kingdom. He further fails to find a close relationship between alcoholism and exposure to contagion quoted by McDonagh, and in order to arrive at an independent conclusion he recently tabulated 461 cases of soldiers admitted to hospital under his care in the past year at Malta, with freshly contracted venereal disease, and found that 203 were total abstainers, 112 consumed less than two pints of beer, 46 consumed three pints, and 100 consumed over three pints a day. The points brought out in a lengthy discussion of the papers presented were as to the probable cure of syphilis by the newer arsenical preparations, the great reduction in the incidence of the disease, and the need of sequestration of the affected until they are cured, and the importance of intelligent prophylaxis, thus lessening the heavy burden upon the state incident to the treating of syphilitics.—(*Editorial, Therapeutic Gazette*, April, 1913.)

Book Notices.

Neurasthenia Sexualis. A Treatise on Sexual Impotence in Men and Women. For Physicians and Students of Medicine. By BERNARD S. TALMEY, M. D., former Pathologist to the Mothers' and Babies' Hospital, and Gynecologist to the Yorkville Hospital. With nineteen drawings in the text. 196 pages. Cloth, \$2. The Practitioners' Publishing Company, New York.

This treatise considers the anatomy of the sexual organs in men and in women; their sexual physiology; their psychology; the etiology of impotence in men and women; its pathology; its treatment, and, finally, its hygiene.

While an individual, because of his own experience, may differ in some of his viewpoints from the author, he must emphatically concur with him regarding the importance that impotency plays. It does not do to dismiss the patients so afflicted, with a few light words. The disease does not lie in the imagination, always, as is so often thought by the practitioner; and if it does, there is all the more scope for his healing power. And as for that coldness of which "the female of the species" so often boasts, hear the author: . . . "female impotence has even a greater social significance than the male. If the woman is suffering from relative frigidity, she will, like a Messalina of old, often seek extra-marital enjoyment and thus break up her home. Absolute frigidity is of no less danger to matrimony. Indifferent to the act to which no pleasure attracts her, the frigid woman passes always from indifference to repulsion, especially after one or several pregnancies. The pleasure which makes the normal woman forget the pains and troubles is here absent. The repulsion creates quarrels between husband and wife, which often drive them to the divorce court. Furthermore, the indifferent passivity of the totally frigid woman is not seldom the cause of relative impotence of the husband, especially when he has reached the dangerous age of fifty. In such a case the husband will look elsewhere for stronger stimuli than he finds in wedlock. The result will again be separation and divorce. In the majority of cases, incompatibility of temper or difference in disposition, which are given in court as the causes of divorce, really mean impotence in one or the other of the mates. . . . When impotence intervenes, the temporary differences become permanent and lead to aversion,

hatred and divorce. Hence, impotence, and especially female impotence, is not only of great importance from a medical point of view, but is also of great social significance."

Finally, the reviewer would call attention to the excellent part on the "Hygiene of Impotence" which is truly hygiene of sex. P.

Differential Diagnosis. Presented through an Analysis of 385 cases. By RICHARD C. CABOT, M. D., Assistant Professor of Clinical Medicine, Harvard Medical School. Second Edition. 8 vo. 764 pages. Illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$5.50 net.

Differential diagnosis is here discussed by means of a consideration of the leading symptom and the grouping of reasonable possibilities, as presented through an analysis of 385 cases of varying symptomatology. It is sought to indicate not only the *possible* causes and linkages of any symptom, and which of them is most *probable*, but also to point out the methods of examination to determine the *actual* cause. General consideration of a symptom receive first attention, as, for instance, with the degree and types of pain, relation of pain to other facts, etc. The significance of pain in different body areas is taken up *seriatim*, case histories being given in illustration. The importance of pain in diagnosis is well shown from the fact that about one-half the book is taken up with this one symptom. Fever, chills, coma, convulsions, weakness, cough, vomiting, hematuria, dyspnea, jaundice, and nervousness, are other symptoms discussed. With the chief symptom of some doubtful malady known, reference to this work will greatly aid in solving the problem as to diagnosis, thus rendering it of decided service to every general practitioner. A full index materially enhances the value of the book.

Sexual Impotence. By VICTOR G. VECKI, M. D. Consulting Genito-Urinary Surgeon to the Mount Zion Hospital, San Francisco. Fourth edition, enlarged. 12 mo. 394 pages. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$2.25 net.

After closing the book one comes to the conclusion that it contains much of good that could be rendered more valuable by careful editing. Illy expressed ideas often cloud the author's meaning. Often, too, he is inclined to verbosity. In agreeing with an authority upon a subject

of no great importance, a number of pages are devoted to quoting him; however, one wishes that some few mere references had been so amplified as to gain for us a fuller understanding. For those whose opinions he opposes, he is intolerant, displaying that spirit against which he is inveighing. Seemingly contradictory statements are made. Much space is wasted by the iteration and reiteration of facts obvious to the least experienced practitioner.

And yet, the author gives tongue to ideas that, viewed with indignation and, possibly, horror at this time must surely force their way to recognition before many years have sped. Facts are stubborn things; and as long as the human being is what he is and not an angel, we must face those facts. The individual in the concrete as well as in the abstract claims our attention.

To the unbiased, we recommend this work with the assurance that consideration of the many lines of thought, some startling, presented, will repay him for the effort of perusal, even though he does not agree with them all.

M. W. P.

Practical Medicine Series. Under General Editorial Charge of GUSTAVUS P. HEAD, M. D., Professor Laryngology and Rhinology, Chicago Post-Graduate Medical School and CHARLES L. MIX, A. M., M. D., Professor Physical Diagnosis Northwestern University Medical School. Series 1912. Chicago. The Year Book Publishers. 8 vo. Cloth. Volume VIII, 350 pages, price \$1.50, and Volume X, 236 pages, price \$1.35. Series of 10 volumes, \$10.

Volume IX has previously been noticed. Volume VIII treats of Materia Medica and Therapeutics, Preventive Medicine, and Climatology, edited by Butler, Favill and Bridge, while Volume X is on Nervous and Mental Diseases, and edited by Patrick and Bassoe. These books include abstracts from a number of interesting articles by foremost authors, as they would seem to bear on the subjects discussed, and are so well known, that a statement of the subjects embraced in each volume seems all necessary. We might, however, state that the volumes are well indexed as to subjects and authors, and, where they would add to the interest or clearness of a subject, illustrations are reproduced from the original.

Editorial.

The Gram Stain and Tubercle Stain.

As aids in practical bacterial diagnosis there are no methods more widely used than the ordinary Gram stain and the ordinary acid-fast stain for tubercle bacilli. In 1884, Dr. Gram of Denmark noted that some bacteria cannot be decolorized by alcohol if they have first been stained with gentian violet and subsequently dipped into a solution of iodine. Other bacteria when treated in this way decolorize as readily as if they had not been exposed to the iodine. This fact has been made use of very extensively, but the explanation has never been very clear. It is found that only stains of the pararosanilin series can be used for the successful Gram stains. No adequate explanation has been given of the fact that some bacteria retain the stain while others do not, nor has it been learned by what means the cell retains the stain. A certain amount of evidence has been brought forward to indicate that there is a chemical combination between the iodine and the stain which does not occur when any other than the pararosanilin stain is used. It has been suggested that those bacteria which are Gram-negative are impervious to the iodine solution.

The Gram stain has been investigated recently by Benians,[†] who found that the Gram-positive property depends upon the integrity of the bacterial body. If the bacteria were mashed, they were readily decolorized by alcohol. The mashed bacteria could easily be stained but could not hold their stain when treated with alcohol. It appeared that the cell was completely permeated by the stain and also by the iodine. Similarly, he attacked the tubercle bacillus and its relation to staining and decolorizing. The bacillus when stained and mashed was easily decolorized. The mashed material was easily stained, but also easily decolorized. Only those bacteria whose shape was preserved were acid-fast. He then compared the relative strength of the acid-fast property with the Gram-fast property; the latter could not be demonstrated in the presence of the former. This work indicates that the Gram stain is a chemical phenomenon due to

a combination of the iodine with the methyl violet or gentian violet, and also indicates that the integrity of the outer wall of the bacteria is important in relation to each of these staining methods.

H. T. M.

Lymphocytosis of Infection.

It is a fact of great clinical importance that infections with the pyogenic cocci are regularly accompanied by a rise in the number of polymorphonuclear leukocytes in the circulation. The value of leukocyte counts as an aid in making a diagnosis in many obscure infections is so well recognized that it is a commonplace of medical practice. It is therefore surprising to find that occasionally such infections are not followed by an increase in the polymorphonuclears but only by an increase in the lymphocytes. Cabot* reports several cases in which this phenomenon was met with,—one, a wound infection; a second, a case of persistent boils; the third, a case afflicted with epidemic sore throat that raged in Boston during 1912, and a fourth case which had rather an obscure infection, possibly streptococcic. In these cases the leukocytes varied from 3,400 to 30,500, the percentage of lymphocytes going as high as 86 per cent but varying from 42 per cent to 86 per cent.

The differential diagnosis in these cases from leukemia was not always an easy matter, depending upon the recognition of an infectious origin for the glandular enlargement, upon the course of the disease and upon the lesser degree to which the lymphocytes developed.

H. T. M.

Money for Legislative Committee.

As "a hint to the wise" is said to be sufficient, it might be well to take this occasion to call attention of Virginia doctors to the appropriation recently made by the South Piedmont Medical Society, at its Danville meeting, of \$50 for the use of the Legislative Committee in its work for the repeal of the License Tax on Physicians.

The Richmond Academy of Medicine and Surgery has appropriated a like sum for this purpose.

If two of the local societies have deemed the matter of sufficient interest to make appropriations, why should not others fall in line? Do

[†]T. H. C. Benians; *J. of Path. and Bact.*, Oct., 1912.

*Cabot, Richard. *Am. J. Med. Sciences*, Vol. 145, No. 3. Whole No. 492, p. 335, March, 1913.

not stand back waiting to make a large donation, for the smaller amounts have their place also, and like the "little drops of water" and "little grains of sand" may assist in accomplishing wonders for doctors in this State of ours.

Dr. Stover announces that a few doctors have made individual donations to the fund, and hopes that others may respond later on.

The South Piedmont (Va.) Medical Society

Held its Spring meeting in Danville, April 15, Dr. H. S. Belt, of South Boston, in the chair. The attendance was good, and some excellent papers were read and freely discussed. Possibly one of the most important things, from the standpoint of interest to doctors throughout the State, was the appropriation of \$50 from the funds of the Society for the use of the Legislative Committee. At the close of the business sessions, a "smoker" was tendered the Society by the local profession. The local committee of arrangements was composed of Dr. H. A. Wiseman, chairman, and Drs. R. B. James and W. O. Lee.

Officers elected for the coming year were as follows:—President, Dr. James Morrison, Lynchburg; vice-presidents, Drs. H. A. Wiseman, Danville, I. K. Briggs, South Boston, J. A. Owen, Turbeville, and Ray A. Moore, Phenix; secretary, Dr. George A. Stover, South Boston, and treasurer, Dr. T. E. Armstrong, South Boston.

The Southwestern Virginia Medical Society

Will hold its next regular meeting at Roanoke, Va., June 3-4, 1913, Dr. J. T. Graham, of Wytheville, presiding. An interesting meeting and large attendance is anticipated. The secretary, Dr. A. B. Greiner, Rural Retreat, Va., will furnish any information desired.

The Medical Society of Northern Virginia and the District of Columbia

Will hold its Spring meeting in Warrenton, Va., May 21, at which time the annual election of officers will be held. Dr. P. S. Roy, of Washington, D. C., is president, and Dr. A. G. Coumbe, of Vienna, Va., secretary.

Lectures on Tropical Medicine at University of Maryland.

At the beginning of the present calendar year, a course of lectures on Tropical Medicine was

instituted at the School of Medicine of the University of Maryland, under care of Dr. James A. Nydegger, Surgeon U. S. Public Health Service. These lectures have been largely attended by physicians as well as students, showing the great interest that is being taken in this branch of medicine at the present time. So satisfactory has been this course, that the faculty has decided that, beginning with October, the course will be continued throughout the entire scholastic year. Arrangements will be made for showing an increased number of tropical disease cases, exhibition of specimens, and practical instruction in diagnosis.

The lectures given during this past half session have been on a variety of interesting subjects which, in many cases, have been illustrated with lantern slides. Dr. Nydegger has been assisted in giving these lectures by Prof. Ch. Wardell Stiles, Hygienic Laboratory, and Drs. H. R. Carter, C. W. Rucker, and C. H. Lavinder, all of the U. S. Public Health Service.

The International Congress on School Hygiene

Will hold its fourth, and the first meeting in America, at Buffalo, N. Y., August 25-30, 1913, the former meetings having been held at Nuremberg, London and Paris. Representatives will be sent to the Congress from all of the leading nations, and from all leading educational, scientific, medical, and hygienic institutions and organizations of this country. In its effort to improve the health and efficiency of school children, it is hoped that the meetings will be of direct benefit to each individual community.

The program committee announces a program of two hundred and fifty papers and fifteen symposiums, covering the entire field of school hygiene, added to which there will be both scientific and commercial exhibits. A collection of \$40,000 has just been taken in Buffalo for a series of social events, including receptions and a grand ball, a pageant in the park, excursion trips to the great industrial plants of Buffalo, Niagara Falls and the Rapids.

President Wilson is honorary patron of the Congress, while Mr. Charles W. Eliot, of Harvard University, is president. The vice-presidents are Dr. William H. Welch, of Johns Hopkins, and Dr. Henry P. Walcott, chairman of the Massachusetts State Board of Health.

The Congress is open to all persons interested in school hygiene upon the payment of a five dollar fee. Applications for membership should be sent Dr. Thomas A. Storey, College of the City of New York, New York City.

Fifth District Medical Society of N. C.

At a meeting of this Society in Fayetteville, April 22, Dr. J. W. Halford, of Chalybeate Springs, was elected president; Dr. A. B. Croom, of Maxton, secretary, and Dr. R. D. McMillan, of Red Springs, treasurer.

The Tennessee State Medical Association,

At its annual meeting held in Nashville, early in April, elected Dr. Wm. D. Haggard, of Nashville, president; Drs. E. M. Holmes, Murfreesboro, Robt. Mann, Memphis, and H. P. Larimore, Chattanooga, vice-presidents, and re-elected Dr. Perry Bromberg, of Nashville, secretary.

Southern Sociological Congress.

At the second meeting of the Congress in Atlanta, Ga., the last of April, plans were discussed for a systematic war upon various forms of evil in the South, especial attention being paid to the race problem, and work to be done by the travelers' aid and protective organizations in rendering assistance to strangers and protection to young girls at the railroad stations in the large cities. J. E. McCulloch, of Nashville, Tenn., was re-elected secretary-general of the Congress, and the next place of meeting is to be decided and announced by a committee at a later date.

The Medico-Legal Society,

Of which Dr. T. D. Crothers, of Hartford, Conn., is president, announces a special jubilee program for its May meeting, to commemorate the closing of the third decade since the founding of the Medico-Legal Journal. The meeting will be held at the Waldorf-Astoria, New York City, May 21.

National Commission on Milk Standards.

A number of notable health authorities were in attendance at this meeting in Richmond, May 2 and 3. The gist of papers read related to the value and need of uniform and high standards of milk purity.

The Virginia Health Department

Announces that it is ready to begin war on typhoid fever, and it is now planned to open a field laboratory to continue the study of rural typhoid. Assistant Commissioner, Dr. A. W. Freeman, will be in direct charge, with headquarters in this city, and, as in the past two years, Surgeon L. L. Lumsden, of the U. S. Public Health Service, who is recognized as one of the country's leading authorities on typhoid fever, has been detailed to co-operate with Dr. Freeman in this work.

Two inspectors of the State Board of Health have already begun the summer campaign against hookworm disease. Dr. W. A. Brumfield first opened a dispersary in Dickenson County, and, after completing the work there, will visit other counties in southwest Virginia. Dr. K. E. Miller commenced his campaign at Appomattox Courthouse.

Dr. William F. Drewry,

Of Petersburg, was a recent visitor at this office. He is looking splendidly, having entirely recovered from his recent illness at home and the Johns Hopkins Hospital. He has now resumed his work as Superintendent of Central State Hospital, Dr. H. C. Henry, first assistant physician, having been in charge during his absence.

Dr. W. M. Smith,

Of Alexandria, Va., was elected one of the school trustees of that city at a recent meeting of the City Council.

Dr. E. C. Powell Honored.

The school board of Dinwiddie County, at its meeting in April, unanimously voted to recommend the reappointment of Dr. Powell as superintendent of schools for the County, a position which he has most satisfactorily filled for a number of years.

Alienists and Neurologists to Meet.

As the outcome of a meeting held in Chicago last year under the auspices of the West Side Branch of the Chicago Medical Society and the Chicago Medical Society, a resolution was adopted to hold a second meeting of the Alienists and Neurologists of the United States in Chicago in 1913. This meeting will be held

in Chicago, June 24-27, the week following the A. M. A. meeting in Minneapolis. Dr. W. T. Mefford, of 2159 West Madison Street, Chicago, is secretary of the committee in charge.

Surgeon J. F. Anderson

Was detailed by the U. S. Public Health Service, to attend a conference of the Commission on Milk Standards, which was held in this city, May 2 and 3.

Capt. J. D. Whitham, M. C., U. S. A.,

Left Ft. Howard, Md., April 29, for his station, Ft. Monroe, Va.

Richmond to Have Public Playgrounds.

It seems an assured fact that Richmond is at last to have the public playgrounds for which it has been working for some time. The administrative board has made an appropriation for this work, and C. A. Taylor, Jr., has been appointed supervisor, effective May the first, with salary of \$2,000 per annum.

Two New Hospitals for North Carolina.

Bids have been asked for the erection of a modern hospital building in Winston-Salem, N. C. It was also decided to erect a fire-proof three story addition to the white hospital for the use of colored people.

Drs. Geo. Ben. Johnston, A. Murat Willis and several other physicians of this city, have arranged to have a private hospital in Rocky Mount, N. C.

Dr. Charles F. Painter,

Superintendent of the Boston Hospital for Crippled Children and professor of Orthopedic Surgery in Tufts College Medical School, of that city, is scheduled to give a public address in Richmond, May 9, on The Treatment and Training of Crippled Children.

Disease in Milk,

With pasteurization as the remedy, is a compilation by his wife, of the record of Nathan Straus' work in this one department of his philanthropies. It is replete with much interesting information as to what has been accomplished by his establishment of infants' milk depots in this and other countries, and also explains how pasteurization may be done at home. So successful has been this method in the saving

of the lives of babies, and so vast are the possibilities of the work, that this record may well furnish an incentive as to the field of labor to those who wish to indulge in philanthropic work.

The Playground and Recreation Association of America

Is meeting in this city as we go to press. There is a large attendance of those interested in work for children, and many instructive and interesting addresses have been made.

Physical Standard of U. S. Naval Recruits.

We have been interested in noting in an editorial appearing in the April issue of the *United States Medical Bulletin* that an examination of the causes for rejection at the various recruiting stations shows that a number of applicants are rejected on account of disqualifying defects which are easily remediable. Among these disabilities may be mentioned defective teeth, hemorrhoids, varicocele, flat foot in a minor degree, and enlarged tonsils. These causes were responsible for nearly one-fourth of the 51,000 rejections during 1912, varicocele alone resulting in the loss of 3,000 applicants.

Obituary Record.

Dr. Thomas Nelson Watson Morris

Died at the home of his brother in Louisa County, Virginia, April 25, after an illness of several months, aged fifty-three years. He was a graduate of the University of Virginia in the class of 1881, after which he attended lectures in New York City. Several brothers survive him.

Dr. Prince A. Morrow,

Than whom there were few more prominent doctors in this country, died at his home in New York City, March 17, aged sixty-six years. He graduated from the N. Y. University Medical College in 1874. Not only as a leading dermatologist, but also as a professor and author he had gained great distinction. He was for a number of years, editor of the *Journal of Cutaneous and Genito-Urinary Diseases*, though he is probably more generally known as the author of "Social Diseases," which book was published by him several years ago.

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IS OBSTETRICS SURGERY?*

By SOUTHGATE LEIGH, M. D., Norfolk, Va.
President Medical Society of Virginia; Surgeon-in-
Charge Sarah Leigh Hospital.

Although its title might suggest a technical discussion of the relation between surgery and obstetrics, yet, such is not the case. This brief paper is intended to be a heart to heart talk on the subject of surgical cleanliness as applied to obstetrics; of the necessity of a thorough training in the principles of cleanliness in order to be a safe obstetrician, and a brief inquiry into conditions as they seem now to exist with the profession.

When the speaker first came to Norfolk fresh from the atmosphere of an up-to-date, "clean," hospital, and imbued with the enthusiasm born of intercourse with thorough, modern, progressive men, he attended a meeting of this distinguished Society, at which the subject of puerperal fever was under discussion, and especially its causation and prophylaxis. At that time there had been a number of violent cases of puerperal sepsis in the community. After a prolonged and interesting discussion, I was called upon to express my views. I thought it best to state in detail the aseptic and antiseptic precautions pursued by me in the management of obstetrical cases, during and after the confinement. When my remarks were concluded, one of the older members of the society, whom some of you remember as a brilliant scholar, but a scoffer at the germ theory, arose and said "Mr. President: I have listened with a great deal of pleasure to the remarks of the last speaker, and all I have to say is that I thank the Lord I am not a woman." Later the same

gentleman stated that, of course, he washed his hands while attending an obstetrical case, but "after the examination and not before."

My own views and ideas in regard to the "clean" management of obstetrical cases have always been, I admit, extreme. I believe, and have persistently contended, that an obstetrical case should be treated in this respect as strictly as a major surgical case would be in a modern operating room.

The reasons for such strict asepsis and anti-sepsis are perfectly plain and are admitted to be true by every intelligent medical man. It is not necessary to detail them here. It is just as vitally important to be absolutely surgically clean in the management of an obstetrical case as in the performance of a difficult laparotomy. Then, why so much carelessness on the part of the average practitioner? Why trusting so much to luck? And what is it but luck that saves so many women from puerperal infection? It is inconceivable to me why the modern medical man is so careless about these vital matters. It reminds me of the criminal carelessness shown only too often in the handling of contagious cases. Has the doctor a right to go in and out of a room in which is isolated a case of scarlet fever or diphtheria and then mix freely with his other patients and the public? Are his clothing immune to the carrying of contagion? We all know well that we have no moral right to enter and leave such a room without being protected by a gown or sheet, and, in this way, taking at least moderate precautions to prevent spreading the disease. How can we insist upon a family keeping up strict isolation, when the physician himself is guilty of breaking, most flagrantly, the very laws which he is pretending to enforce?

What is the matter with our profession that although we are constantly reaching out after new and modern methods and ideas, yet we are

*Read before the Norfolk County Medical Society, April 28, 1913.

For discussion, see page 95.

almost criminally derelict in looking after these elementary matters?

The great advantage of a good surgical training is that the surgeon is "brought up" in an atmosphere of surgical cleanliness. With a thorough up-to-date surgeon it is just as natural to observe the details of surgical cleanliness as it is to breathe. Any break in the carrying out of these details comes as an immediate and violent shock to him.

As simple as are the principles and practice of surgical cleanliness, yet they cannot be learned practically from books. That has been illustrated time and time again by the work of the old time surgeons who began before the days of asepsis.

I have on many an occasion seen such a surgeon, after making the most elaborate and ostentatious arrangements for an operation, and even expatiating on the absolute necessity for such precautions, spoil them all by unconsciously adjusting his glasses with his sterilized hands in the midst of an operation!

I say then, again, that a man must be "brought up" in an atmosphere of surgical cleanliness to be really "clean."

There are not many of the old timers left, and the present-day doctors have not the excuse of ignorance to plead. Most of them have either seen or done enough surgery to be sufficiently familiar with the principles of cleanliness. What, then, is the difficulty? Lack of time, careless, trusting to luck!

Is this right? Is it humane? Are we not criminally negligent when we run the risk of infecting our obstetrical cases?

What then are the necessary precautions to be taken in the management of this kind of work?

A vaginal examination should not be made without sterile gloves, and before such examination the vagina should be douched with an antiseptic solution, and the vulva washed with soap and water and bathed with a stronger antiseptic solution. If an obstetrician will systematically keep his hands away from pus and infection, using gloves in all dirty treatments and examinations, it may be safe for him to discard gloves in obstetrical work. His hands should, of course, be most thoroughly cleansed.

In my opinion it is best to give an antiseptic douche in the beginning of labor. I prefer lysol or carbolic solution with tincture of green soap.

The parts and surrounding skin should be thoroughly cleansed with soap and water and 1 to 1000 bichloride.

The parts being thus made "clean" should be kept so during labor and afterwards by not allowing anything unsterile to come in contact with them, and by bathing with antiseptic solutions from time to time.

In a hospital, and outside when feasible, the patient's clothing, sheets, towels and physician's gown should be sterilized.

Conveniently at hand should be a table covered by sterilized towels, and containing cotton, gauze, instruments, basins and solutions, all sterile.

In making a vaginal examination, the physician should separate the vulva and wipe off with a wet antiseptic sponge before inserting the finger.

When the head reaches the perineum, if the patient is placed on the side, cleanliness can be more readily carried out. The parts are again bathed off, a cotton pad wet in soap-carbolic solution held on the perineum and rectum, and all around covered with sterile towels.

When sterile dry towels are not available, wet ones, soaked in a solution of bichloride are just as good.

If instruments are used, they should all be boiled and arranged on a sterile table, just as in an operating room.

The physician must be careful not to touch anything that is unsterile. If he is forced to do so, he must thoroughly cleanse his hands again both by scrubbing and soaking in bichloride solution.

In the after-handling of an obstetrical case, all is plain sailing if a well-trained nurse is employed. She has to look after the case precisely as she would a case after an operation about the vagina.

Where untrained nurses are forced upon us, we can still be careful. We have, of course, to teach them to soak their own hands in a strong solution of bichloride, to thoroughly bathe off the patient with a proper solution, and to properly handle the sterile pads.

The most difficult task is teaching them not to move chairs, covers, etc., when their hands are supposed to be "clean," and to prevent their putting an unclean pan under the clean patient.

With these cases, the freer use of antiseptics

and close watching of the nursing will practically overcome the difficulties.

It is so easy nowadays to get sterile dressings and pads, that there is no excuse in not using them.

If physicians will realize the vital importance of surgical cleanliness as applied to obstetrics, will watch themselves closely to prevent making "breaks," and look closely after the nursing, they will have practically no infected cases in the future.

INDIGESTION, A DANGER SIGNAL.*

By MATT OTEY BURKE, M. D., Richmond, Va.

The human system can be compared to a well regulated plant, in which the head is the main office, the brain the superintendent, and the nerves the electric wires connecting each branch with the main office; the heart and the blood vessels the pumping system and general distributing office, the lungs and liver the refining plants, and the digestive tract the commissary and the clearing house.

Now the digestive system is so intimately connected with the entire plant that it is almost impossible for any part of the body to be affected without producing more or less derangement of the digestive system. The food is taken into the digestive tract and prepared for distribution, each part separated and labeled, the superintendent sends the message and the packages are taken up by the venous system, and carried, some by way of the liver, to the right side of the heart, then pumped through the lungs to the left side of heart, and by the left heart are distributed to different portions of the body by way of the artificial system. The minute cells of each tissue take up those supplies as they are needed and at the same time send out their refuse material, and the drainage system carries this refuse material, or excreta, to all parts of the body.

Hence, it can be readily seen that a diseased condition in any tissue or any organ may affect any other tissue or any other organ in the body.

We know that many cells have a secretive function as well as excretive, and it may be that all cells have this function. It is also known that the secretion from certain cells has a special affinity for the cells of some other organ

or system. This may account for the digestive symptoms in many diseased conditions, remote or near the digestive tract.

Ninety-nine per cent of the civilized world has had, now has, or will have indigestion.

The frequent occurrence of indigestion probably accounts for the little stress laid upon it, both by the laity and the profession.

There are so many forms and phases of indigestion that to fully describe them would require a large volume and an immense amount of patience to read it. For the present purpose it suffices to consider only nausea, vomiting, constipation, diarrhea, discomfort and pain in the abdominal cavity. Indigestion is not always a disease, nor is it always a symptom of disease. It may indicate only a deranged condition, or it may denote the presence of a grave malady. It may be due to an indiscretion in diet; it may be the evidence of efforts to protect some vital organ, or it may be nature's warning of the insidious approach of that dread enemy, death, coming by way of the circulatory, the respiratory, the urinary, or the nervous system, or malignantly knocking at the doors of the digestive tract. In all cases the signal should be heeded, and the cause sought for.

Acute Indigestion—Violent pain in the epigastric region, nausea or vomiting may or may not be present, weak thready pulse, blanched face, cold extremities, cold perspiration, temperature below normal by mouth, distended upper abdomen, painful to pressure, followed by diarrhea, nausea and vomiting, pain diffused over entire abdomen, rise of temperature, with history of attack coming on after eating a hearty meal with indiscretion as to time and manner of eating and quantity and quality of food.

First we have congestion and spasm of the stomach, followed by irritation and violent peristalsis of the intestines, and absorption of poisons by the circulation.

The violence of the attack, following indiscretions, character and location of the pain, distended upper abdomen, history of previous good health, and the absence of organic lesions, is sufficient evidence that we are dealing with a case of simple acute indigestion.

Gastric Ulcer—Some ulcers may produce few or no symptoms until the patient is prostrated by a severe hemorrhage; this is not often the case.

*Read before the Tri-State Medical Society of the Carolinas and Virginia, at Norfolk, Va., February 19-21, 1913.

Usually ulcers of the stomach in the early stages cause uneasiness in the stomach; later on there may be every degree of discomfort from a mere gnawing sensation to a severe cramp-like pain, coming on from thirty minutes to two to four hours after meals.

There is usually heart burn, acid eructations, a boring, gnawing sensation in the epigastrium, nausea, occasionally vomiting, most frequently constipation.

These symptoms are usually relieved for a time by taking food or water.

The patient has periods of rest from these symptoms. The attacks seem to be worse in the spring and fall. There is usually more or less tenderness in the epigastrium. Sometimes there is a tender point in the back on left side of the spine; its presence or absence is of little value.

If there is pyloric obstruction, the stomach is usually enlarged. Gastric analysis usually shows complete digestion of proteids, hyperchlorhydria, and a retarded digestion of carbohydrates; it may or may not show free or occult blood. The feces, if examined every day for a week during the period of discomfort, will most probably show occult blood. The appetite is usually good, though the patient may be afraid to eat. There is no special cachexia. The blood shows nothing typical.

Ulcers usually occur in patients under forty, though they may occur later.

The diagnosis is based on age of the patient, seat and character of pain, the relation of pain to food, absence of cachexia, analysis of stomach contents, and especially the presence of occult blood in feces, the recurrence of attacks after several weeks or months of comparative comfort.

Gastric Cancer usually occurs after the age of forty, though it may occur earlier. "Whenever, a patient past forty years of age, and previously free from stomach trouble, begins to have any sort of gastric discomfort, severe or mild, gastric carcinoma should be considered."—Cabot.

Gastric cancer is so insidious in its approach that it generally firmly establishes itself before the patient consults a physician, or before the physician suspects cancer.

The cases at St. Luke's Hospital have nearly all been in men, and most of them have been

past forty-five years of age. The symptoms presented by these patients have been discomfort after eating, general weakness, loss of appetite, loss of flesh, a dry, muddy appearance of the skin, a peculiar glassy condition of the sclera; nearly all have had nausea and vomiting at times. In nearly all we have been able to palpate a mass in the epigastrium. Most of them have had absence of or deficient hydrochloric acid and occult blood in feces. Many of them have not had stasis. A few have had a normal amount of hydrochloric acid, no vomiting and no pain, and a good appetite until shortly before death.

One patient presented no symptoms by which any stomach trouble could be suspected, the only symptom complained of being a burning in the back of the head on the left side. In making a routine examination, a few particles of membrane came up with the stomach tube, which showed cancer cells.

Appendicitis always begins with pain in the abdominal cavity, is nearly always accompanied by nausea and vomiting, and constipation, though there may be diarrhea. Many cases have been considered only attacks of indigestion until it was too late for an operation to do any good.

While we have pain, nausea, vomiting and constipation, we generally have fever and tenderness with rigidity over the appendix.

Pain, muscular resistance and hyperæsthesia are given by Dieulafoy as the diagnostic triad in appendicitis. These symptoms should be sought for in every case of abdominal pain, especially with children, as appendicitis proves rapidly fatal in the tender years.

Gall Stones occur more frequently in women than in men, and more often in stout than in thin people. Stones in the gall bladder may produce no symptoms. Stones lodged in the ducts always produce symptoms. Stones in the bladder and in the cystic duct do not produce jaundice unless there is cholecystitis.

The usual symptoms are pain in the epigastrium or right upper quadrant radiating towards back, umbilicus or right shoulder; the pain is usually agonizing in character, may be entirely independent of food or, if in the common duct, food will increase it, usually accompanied by nausea, vomiting and constipation.

The diagnostic symptoms are intense pain

and tenderness in region of the gall bladder, suddenness of the attack, also frequently abrupt termination of pain, clay-colored stools, bile in urine, and jaundice. During the attack the pulse is accelerated; between the attacks the pulse is slow.

Tabes usually produces abdominal symptoms such as nausea, loss of appetite, cramp-like pains, and constipation. The chief diagnostic symptoms are irregular pupils, failure of pupils to react to light, impaired, or absence of reflexes of the knee and ankle.

Plumbism often impresses itself upon the patient by upsetting the digestion, causing weakness, loss of appetite, nausea, pain and constipation. The diagnostic symptoms are the lead line on the gums and basophilic staining of red cells.

In *Chlorosis* we have hyperchlorhydria and constipation. In *pernicious anaemia* we have deficient hydrochloric acid, constipation and diarrhea alternating. In the one we have marked decrease in haemoglobin without a marked loss of red cells. In the other, while the coloring matter is very much reduced, the red cells are decreased in a greater proportion, and we have nucleated red cells, megaloblasts, microcytes and poikilocytosis. In the *leucemias* the change is principally in the white cells.

Incipient Tuberculosis most frequently sounds its first alarm in the digestive tract. In the early stages of tuberculosis we generally find hyperchlorhydria and constipation, though I have seen many cases of hyperchlorhydria only a short while before death. The digestive disturbances are most probably produced by the toxins carried from the pulmonary cells to the cells of the stomach and intestines.

Diseases of the liver and pancreas always show digestive disturbances at an early date. Cardiac diseases necessarily upset the digestion. Frequently the patient complains of flatulence and pain in the epigastrium, when an examination will show a crippled heart to be the cause.

Valvular and myocardial lesions affect the digestive organs by causing hyperaemia, venous congestion and deficient arterial blood supply.

Many times we are called upon to treat indigestion and find that the seat of the trouble is some grave kidney lesion.

Most, if not all, cases of death reported as resulting from acute indigestion, did not die

from indigestion but from the weakened condition caused by a previous disease of some vital organ. The disease of this vital organ plus imprudence in eating, caused the indigestion, and the results of the indigestion, mechanical, chemical or toxic, overcame the diseased organ and death was the result.

So it behooves us to look thoroughly through the digestive tract, and beyond it, even in the simplest cases of indigestion.

204 East Franklin Street.

THE ETIOLOGY, SYMPTOMATOLOGY AND TREATMENT OF NASAL POLYPUS.*

By H. W. CARTER, M. D., Washington, N. C.

Nasal polypus is usually a pedunculated tumor of connective tissue which most often grows from the under surface of the middle turbinate bone, from the outer wall of the middle meatus in the region of the openings of the accessory sinuses, or from the ethmoid cells. It is also sometimes found in the maxillary sinus or antrum of Highmore and in the frontal and sphenoidal sinuses.

It is usually significant of a pre-existing catarrhal or suppurative inflammation of the mucous membrane of the nose and accessory sinuses. It is a matter of common clinical observation that nasal polypi are often, in fact usually, associated with suppurative sinusitis and with caries of the bone in the immediate neighborhood of the tumors.

According to some authorities the ethmoid cells are almost invariably found in a state of polypoid degeneration in inveterate cases of nasal polypi. In every case of nasal polypi, whether moderate or extensive, examined by Lambert Lack, bone lesions were found. On the other hand, some of the older writers state that polypi are found in the less obstructed nasal cavity, and use this as an argument against the previous existence of sinusitis.

I have had only a limited experience, but I have never seen a case of nasal polypi in which there did not exist some obstruction in the region of the middle turbinate body or vicious circle of the nose, other than that caused by the tumors themselves.

As Ballenger points out, a concavity is often found in the lower portion of the nasal chamber

*Read before the Seaboard Medical Association of Virginia and North Carolina, at New Bern, N. C., December 4, 1912.

on the side of the polypus, but a careful examination of the upper portion will reveal an obstructive lesion on the side where polypi are present.

I had the pleasure of reading a paper before this Association at Newport News last December on *Deviation of the Nasal Septum*, in which I called attention to the fact that a high deviation of the septum, that is of the perpendicular plate of the ethmoid bone, by crowding the middle turbinate body against the outer wall of the nose, obstructed both the drainage and the ventilation of the superior meatus and of the frontal, ethmoidal and sphenoidal cells; that the retained secretions decomposed and finally became infected, causing suppurative sinusitis, and eventually polypoid degeneration of the mucous membrane and necrosis of the bone.

I do not recall ever having seen a case of extensive nasal polypi that was not associated with a high deviation of the bony septum.

I have under treatment at the present time two cases of nasal polypi, which were associated with a profuse discharge of pus and deviation of the perpendicular plate of the ethmoid bone, the convexity being on the side of the polypi. In these two cases it was necessary not only to remove the polypi and exenterate the ethmoid cells, but to do a submucous resection of the septum, to establish good ventilation and drainage and to restore normal nasal respiration.

Polypi are often seen in both nasal cavities at the same time. A number of such cases have occurred in my practice, and upon examination I have invariably found the convexity of a deviated septum on one side and an enlarged cystic middle turbinate on the other, the obstruction on both sides being in the region of the "vicious circle" of the nose.

The symptoms of nasal polypi are largely dependent upon their size and location and upon the amount of obstruction they cause. The tumors are markedly influenced by atmospheric conditions, being greatly increased in size in damp weather, with a corresponding diminution when the weather is dry. If pedunculated and hanging into the lower portion of the nose, they give rise to the sensation of a movable foreign body. The patient can sniff and blow them back and forth in the nose at will. If sessile, they cannot be moved, but give rise to a sensation of tightness or fullness across the bridge of the nose. The voice has a nasal twang

and is often muffled, owing to the almost total loss of nasal resonance.

Upon examination a grayish semi-translucent tumor is seen hanging in the middle meatus of the nose. Posterior rhinoscopy may show a similar mass either filling the choanæ or even projecting down into the naso-pharynx. The tumor may be single but as a rule there are many of them, varying in size from a pin head to such proportions as sometimes to protrude from the nose.

Various reflex symptoms, such as cough and asthma and frequent attacks of sneezing and hay fever, may be caused by nasal polypi, which can only be relieved by the removal of the polypi and the total exenteration of the ethmoid cells. The sense of smell is impaired or frequently lost on account of closure of the olfactory fissure and pressure of the tumors against the nerve terminals. Headache, dizziness, etc., are frequent symptoms of the associated disease of the accessory sinuses.

In cases of great obstruction, the patient is frequently compelled to breathe through the mouth. The pharynx may be dry on account of the loss of the nasal respiratory function, or from the thick tenacious muco-pus which is discharged into it. Caries and necrosis of the ethmoid cells may be found by the use of a heavy blunt-pointed probe.

The prognosis of nasal polypi is good if they are removed and the pre-existing disease of the nose and sinuses which causes them is also remedied. In those cases in which the cause is a slight nasal inflammation, the removal of the polypi, followed by cauterization of their points of attachment, will effect a cure.

From what has already been said it is evident that if the polypi are due to severe catarrhal or suppurative inflammation of the sinuses it is not only necessary to remove them, but to exenterate the ethmoid cells also.

In view of the great tendency of polypi to recur, the treatment is not as simple as it is ordinarily supposed to be. When we consider that nasal polypi are practically always associated with ethmoidal sinusitis and frequently with disease of the other sinuses, and that small polypi are usually present in the ethmoid cells and therefore cannot be seen, it is easy to understand why their simple removal is practically always followed by recurrence.

No arbitrary rules can be laid down for the guidance of the surgeon in operating for nasal polypi. He must study the facts in each case and arrive at his own conclusion as to the best course to pursue. Generally speaking the polypi and all morbid material should be thoroughly removed and free drainage established.

In my own practice, in every case of extensive nasal polypi that comes under my care, I do the following radical operation: The nasal cavity is thoroughly cleansed with a warm antiseptic spray, and packed with thin pledgets of cotton wet with equal parts of a 10 per cent solution of cocaine and a 1-1000 solution of adrenalin chloride. These pledgets are left in position 10 minutes, when the parts are sufficiently anæsthetized to render the operation practically painless.

All polypi large enough to obstruct the field of operation are removed with a cold wire snare or with forceps. With a pair of straight nasal scissors, the anterior half of the middle turbinate bone is cut loose from its attachment to the outer wall of the nose, and its removal completed with a snare or a pair of Knight's cutting forceps. This leaves the bulla ethmoidalis, the largest and most anterior of the ethmoid cells, exposed to view. With a pair of Luc's ethmoid forceps this cell is perforated, when the presence of pus in the ethmoid cells is often disclosed. All visible polypi are removed, and with Luc's ethmoid forceps and Gruenwald's punch forceps, the ethmoid cells are completely exenterated.

Working horizontally backward, the anterior, middle and posterior cells are successively removed, and finally the sphenoid sinus opened, thus establishing free drainage.

With an ethmoid curette any cells that may have escaped the forceps are cautiously curetted from the outer and upper wall until their surfaces feel smooth. In curetting upward the instrument should be directed slightly outward to avoid injury to the cribriform plate of the ethmoid bone.

After all morbid material has been removed as nearly as possible, the cavity is mopped with a cotton wound applicator saturated with 95 per cent alcohol and packed with iodoform gauze.

The after treatment consists in the use of antiseptic douches, the application of alcohol and the insufflation of aristol powder.

In conclusion, I wish to report two cases of

nasal polypi in which the maxillary sinus or antrum of Highmore was involved.

The first was an old lady in poor health, who had suffered from nasal trouble many years. Mrs. S., aged 75, on account of her advanced years and enfeebled condition, was refused operation in one of the New York clinics with which I was at that time connected. She was referred to me by one of my patients in the same clinic, and when I informed her I would operate upon her she seemed greatly pleased, saying she was willing to run the risk and that she believed an operation would cure her.

In order to give plenty of time to the case, I had her come to my office for treatment. She is the oldest patient upon whom I have ever performed a nasal operation, but in spite of her advanced years and poor health, she went through the ordeal much better than the average young adult would have done. After removing the polypi and middle turbinate and exenterating the ethmoid cells, I discovered two weeks later, upon aspirating the maxillary sinus, that there was an empyema of this cavity.

I then removed the anterior end of the inferior turbinate bone, and made an opening through the naso-antral wall large enough to admit my index fingers.

Through this opening free drainage was established, and the antrum was irrigated daily until the discharge ceased, when the opening was allowed to close.

The result after these two operations was all that could be desired, and the patient rapidly regained her health.

The other patient was a trained nurse, also living in New York. Miss F., aged 40, had been suffering from nasal polypi and antrum trouble for more than two years. I removed the polypi and middle turbinate bone and the anterior end of the inferior turbinate under local anæsthesia.

Two weeks later, under a general anæsthetic, I did a radical Caldwell-Luc operation upon the antrum, making an incision in the labio-gingival junction from the median line to the lower part of the malar prominence. This incision included the mucous membrane and periosteum to the bone.

The muco-periosteum was elevated and the anterior wall of the antrum exposed to view. With a mallet and gouge an opening was made in the anterior wall, which was enlarged with bone cutting forceps.

Upon examination the mucous membrane of the antrum was found much thickened and in a state of polypoid degeneration. The entire mucous membrane was removed with curettes and the operation was completed by making a large counter opening in the naso-antral wall. The antrum was lightly packed with iodoform gauze, bringing one end through the naso-antral opening into the nose, and the labio-gingival incision was closed with sutures.

Through the naso-antral opening the cavity of the antrum was mopped every 48 hours with a saturated solution of boric acid, and lightly repacked with iodoform gauze. The dressings were continued until drainage ceased, when the naso-antral opening was allowed to close. The patient made an uneventful recovery.

ORGANIZATION AND FUNCTIONS OF MUNICIPAL HEALTH DEPARTMENTS.*

By POWHATAN S. SCHENCK, M. D., Norfolk, Va.
Health Commissioner, Norfolk Department of Health.

The organization and scope of any Department of Health would obviously depend upon the size of the city, the bureaus to be covered and the amount of money available.

Inasmuch as this Association, the Virginia Public Health Association, is primarily and particularly concerned in our own State, where the population in our largest city does not exceed 150,000, it is only necessary, then, at this time, to consider departments of health capable of caring for cities of from several thousand to one or two hundred thousand inhabitants.

It is, of course, patent to all that it would not be feasible, necessary or practical for cities of the smaller size to employ, maintain and put in operation a Health Department of the same magnitude that would be required by cities of much greater population, nor could they afford to do so. It has been estimated, and it seems to me to be conservative, that an appropriation of from 40 to 50 cents *per capita* per annum would be a fair proportion of the revenue of a city to be set aside for the maintenance and operation of its health department. The *per capita* appropriation in very small cities would run somewhat higher than in larger cities; the average, however, could come well between these figures. So we would esti-

mate that a small city of say, 5,000, would appropriate 50 cents per capita, making \$2,500.00. In a city of this size, the department would consist of a Health Officer at \$1,000.00; one sanitary officer or inspector at \$900.00; office and office expenses, printing, postage, etc., \$600.00. In this case the Health Officer would look after the general work of the Department and contagious diseases, the Sanitary Inspector would have to look after nuisances as well as the duties of Milk and Food Inspector.

A city of 10,000 could afford a Health Officer, clerk, one Sanitary Officer and one Milk, Dairy and Food Inspector.

In cities running from 10,000 to 25,000, the force should be increased in proportion to the population and money available. The Health Departments in cities just cited would send their bacteriological examinations to the State Department at Richmond for examination and diagnosis. Cities with a population of 25,000 and over should by all means employ a competent bacteriologist, should maintain a bureau of contagious diseases, a team or two and be equipped to establish and maintain a proper system of isolation and quarantine in all infectious and contagious diseases. Cities of from 50,000 to 150,000 require a thoroughly organized and equipped Department of Health, divided into bureaus, the number of employees in each depending upon the population and territory to be covered.

To practically illustrate the writer's idea of the organization, functions and scope of an adequate Department of Health, one that would be potential for good, one from an economic and humanitarian standpoint that ought to produce results, and one that would make the money expended a good investment, paying large dividends in the reduction of morbidity and mortality, as well as enhancing the comfort and peace of the municipality, we will take for example, a Department of Health that should be maintained by a city of 100,000 people, as a standard, the only difference being that if the population is a few thousand less or a few thousand in excess, the employees in some of the bureaus would be lessened or increased as may be necessary to cover the work:

One Chief Health Officer or Health Commissioner	\$3,000.00
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*Read before the Virginia Public Health Association, at Norfolk, Va., October 24, 1912.

One Assistant Health Commissioner.	2,000.00
One Chief of Sanitation, in charge of field force	1,800.00
One Chief Clerk, who would have charge of the vital statistics, books and general records of office	1,500.00
One Stenographer	720.00
One Clerk, whose duty it would be to keep a record of all complaints filed in the office, by 'phone, mail or person and make himself generally useful in the office	720.00
One Bacteriologist and Chemist	1,200.00
One Helper in Laboratory	500.00
One Physician in charge of contagious diseases, whose duty it would be to diagnose, isolate and quarantine infectious and contagious diseases, terminate quarantine, etc., and supervise trained fumigation and sterilization	2,400.00
One Chief Fumigator, who would also have charge of sterilization after fumigation	1,200.00
One Helper in charge of the horses and wagons of the Department..	600.00
One Meat and Food Inspector.....	1,200.00
One Milk and Dairy Inspector.....	1,200.00
Two Trained Nurses, whose duty it would be to assist the physician in charge of contagious diseases, and do such other work as the Health Commissioner may require in educating and instructing households along sanitary and preventive medium lines (each)	720.00
Six Sanitary Officers or Inspectors, whose duty it would be to inspect and abate nuisances generally throughout the city. (All field officers and inspectors should be fully uniformed.) Each	1,000.00
One City Veterinarian, whose duty it will be to inspect, before and after slaughter, all meat intended for human consumption; he will also be in charge of all contagious and infectious diseases among animals, that are liable to infect the human family, and look after the city horses, etc.	1,800.00

Two men with teams for mosquito and fly extermination work, general disinfecting, etc.

One Superintendent or Keeper of Small-pox Hospital

One Colored Trained Nurse for Tuberculosis work among colored people

Experience has taught me that the powers that be, the people who hold the purse strings, will often be inclined to turn a deaf ear when you plead for the funds necessary to successfully run your department; they will tell you that there are many demands upon the public treasury and that they are doing all the charity the city can afford, that the work of the Health Department is an humanitarian one pure and simple. They will try to put you off; but you must not fear to be persistent and aggressive; do not let them get off with the argument that your work is all charity. Tell them that fighting sickness and death is a business proposition; you are dealing now with business men. Impress upon them with all your force that the conservation of the public health is an investment, an ideal investment, paying large dividends and yielding large returns for money spent; that sickness is an expensive thing; that a good record of morbidity and mortality, little sickness and a low death rate, is the very best advertisement and the most valuable asset that a city can send abroad. If the ordinances of the city require that the bureau of medical and surgical aid to the city poor and the bureau of medical inspection of schools be made a part of the Department of Health, they will have to be provided for according to population, hospital facilities, number of schools and scholars. The equipment of such a Health Department will consist of suitable and convenient quarters, offices and office equipment, bacteriological and chemical laboratory, paraphernalia and supplies, the necessary teams and wagons for fumigation and sterilization, sterilization plant, fumigation pots, kettles, sealing paper, chemicals (formaldehyde, potassium permanganate, etc.), small-pox hospital, and ambulance and isolated house for suspects. There should also be one automobile runabout for the Department, particularly for the Chief of Sanitation, one team for Milk and Food Inspector, one team for Milk and Dairy Inspector, one team

for mosquito and fly extermination, and stable quarters for horses, wagons, etc.

If the Bureau of Medical Charities is under the Health Department, there should likewise be a city dispensary with two apothecaries.

Health Departments in cities of 100,000 and over should maintain and operate tuberculosis clinics, free services, dental clinic, and a daily free general clinic at the City Dispensary.

The time is not far distant, I believe, when all cities of this size and over will maintain, as we do in Norfolk, a Bureau of Medical Inspection to supervise the segregated districts.

In the scheme outlined in this paper, owing to time limitations, it is impossible to go into minute details, but nearly every phase of sanitation and public health work is covered by the different bureaus.

My experience has taught that rigid discipline and strict obedience of orders must be maintained if you would make your department a success. The Health Commissioner himself will have many difficult problems to solve; he will have to face very embarrassing positions almost daily; he will be called upon many times to sacrifice his personal interest; he will be importuned by his friends, by physicians and laymen to violate, relax or nullify the rules of his department, and he will be asked frequently by his friends and others to set aside the law in their behalf. He will have to exercise great diplomacy and tact to meet many issues, but if he would make his department the success that it should be, if he would earn merit and keep the confidence of the profession and of the public, he must let only one lamp guide his course, and that should be his conscientious duty, as he sees and understands it, to do his duty without fear or favor, with a simple purpose in view for the betterment, conservation and protection of the health and lives which he is paid to safeguard.

RHEUMATISM—ITS ETIOLOGY AND PATHOLOGY.*

By J. A. OWEN, M. D., Turbeville, Va.

There is probably no word in general medicine so vague in its terminology and so elastic in its designation as the subject under discussion

this evening. There is hardly an ache or pain to which human flesh is heir that has not or may not be ascribed by the laity to this cause. The word rheumatism is derived from the Greek "reo," to flow, and is a relic of the early theories of the migration of toxic fluids from the brain through the body and their elimination in the cavities as "catarrhs." In the light of our present knowledge, rheumatism may be defined as an acute febrile disease, probably infectious, characterized by toxæmia, arthritis of large joints, and tendency to inflammation of serous surfaces.

In this discussion we shall confine ourselves to three accepted forms of rheumatism, as follows: First, acute rheumatism; second, chronic rheumatism, and third, muscular rheumatism.

Etiology—A number of efforts to isolate and identify the specific micro-organism of rheumatism have been made—chief among the investigators being Poynton and Payne, Meyers and Walker—and they have succeeded in isolating from the joints, endocardium, and pleura of persons suffering from rheumatism, an organism which has produced all the lesions of the disease when injected into a susceptible individual. This organism, said to resemble morphologically the streptococcus, has been named the diplococcus of Poynton and Payne, or streptococcus rheumaticus.

In 1910, Dr. A. F. Shafer, of California, prepared sterile aqueous solutions of a large variety of pathogenic bacteria, such as staphylococcus, streptococcus pyogenes, bacillus pyocyaneus, etc., with which he claims brilliant results when injected hypodermatically. His theory is that there is no such thing as a pure infection; that all infections are mixed infections, though one species may predominate. He holds that the human body is at all times the host of a great variety of organisms and harbors these pathogenic bacteria without harm, unless the physiological resistance is below par, and that the symptoms of certain infections are due, in part at least, to destructive action of certain materials produced by complicating organisms which are always present. It must be said in support of these theories of the bacterial cause of rheumatism that its sudden onset, character of fever, mode of involvement of joints, tendency to relapse, the anemia and leucocytosis and great liability to endocarditis, indeed all

*Read as part of Symposium on Rheumatism before the South Piedmont Medical Society at Lynchburg, Va. November 19, 1912.

point to rheumatism as the very type of an acute infection.

Distribution and Prevalence.—Rheumatism is distinctly a disease of temperate and humid climates, and is most prevalent during the months of February, March and April; however, during the past August, which was unusually dry, England was visited by a veritable epidemic of this disease, which thus far has not been accounted for.

Age and Sex.—Before puberty the disease is much more prevalent in girls, five to one; after that age boys lead, four to one. Cardiac complications are most pronounced in the young, and joint symptoms in the aged. The third and fourth decades are the rheumatic years. Exposure to cold and wetting of feet, sudden changes, with unsanitary surroundings and hard labor are predisposing factors of note, and one attack predisposes to another.

Pathology.—The pathological changes incident to rheumatism are observed chiefly in the synovial membranes, heart and blood. The synovial membranes are intensely hyperæmic; there is effusion of fluids into the synovial tissues and into the joint itself. The synovial fluid is turbid, containing leucocytes and fibrin; though the effusion is rarely purulent unless there be a mixed infection.

In the chronic form of the disease there is little effusion into the joints, but a thickening of the fibrous tissues surrounding them, with fixation and awkward immobility, followed by muscular atrophy. Occasionally the articular cartilages undergo changes, and some crepitus can be felt on motion.

Endocardial involvement is a frequent complication, especially in the young. The affected area is clouded and hyperemic, the valves slightly swollen, due to cellular infiltration and edema. There is often deposited along points of contact of valve leaflets leucocytes and fibrin, forming vegetations, thus preventing closure of valves. Later on adhesions between the leaflets and their vegetations permanently alter the contour of the valves, giving rise to leaks and murmurs. The blood shows excess of lactic acid and fibrin.

In conclusion, we may say that rheumatism presents the classic picture of an acute infection, producing pathological changes in synovial membranes endocardium and the blood stream.

Clinical Reports.

CASE OF ADENO-CARCINOMA OF THE RIGHT OVARY, DEVELOPING LATER IN THE LEFT.—OPERATIONS—RECOVERY.*

By W. P. CARR, M. D., Washington, D. C.

Mrs. H.; white, female, aged 60. Mother of 4 children. Had good health until the summer of 1911, except for an attack of suppurating appendicitis, which was operated upon about 7 years before and left her with a hernia.

During the summer of 1911 she had considerable pain in the abdomen in the region of this hernia and the abdomen began to swell.

I saw her first in consultation with Drs. C. S. White and Gunning, on September 1, 1911. At this time her general appearance and pulse were good except for a great distention of the abdomen. She had pain and symptoms of obstruction of the bowel, and we thought she might have obstruction from adhesions or strangulation of the hernia which had caused distention of the bowel and ascites.

The tumor, afterward found, was very soft and could not be palpated at this time on account of the great amount of fluid in the peritoneal cavity. Immediate operation was advised, and was done the next day, September 2, 1911, at Sibley Hospital, Drs. White and Gunning assisting.

Incision was made around the old scar, which was dissected out and the abdomen opened. A gallon or more of ascitic fluid tinged with blood escaped, and it was found that a large cystic tumor occupied most of the lower abdominal and pelvic cavities.

This proved to be an ovarian growth, partly solid and containing one large cyst and some smaller ones. It was much larger than at first suspected because it filled the deep pelvic cavity completely. The large cyst had a very soft friable wall, varying in thickness from quarter of an inch to 3 inches and contained 2 or 3 quarts of bloody viscid gelatinous material. The whole growth measured about 12 or 14 inches in its long diameter and 8 inches transversely, and was evidently malignant. It was not adherent, but so soft that it broke into several

*Read before the Medical and Surgical Society of the District of Columbia, December 5, 1912. For discussion, see page 93.

pieces in lifting it out of the pelvis. The abdomen, after removing the tumor, was thoroughly cleansed and closed—incidentally closing the hernia.

The patient made a splendid recovery. I never saw one seem so little inconvenienced by an extensive abdominal operation. I left the city September 10th, 8 days after the operation and was gone 10 days, placing her in Dr. White's care, and when I returned she was well. Microscopic examination of the tumor showed it to be an adeno-carcinoma. I did not see her again until May, 1912, when I was called by Dr. Gunning for a consultation. Her abdomen was as large as before and her general condition worse. Her pulse was 120 to 130 and it was a question whether a second operation was advisable. However, we decided to explore and see what could be done.

On May 21, 1912, I operated again at Sibley Hospital with the assistance of Drs. White and Gunning. A tumor of the left ovary was found almost identical in every way with the one previously removed.

At the first operation no enlargement of the left ovary was noted, so this large growth had occurred in 8 months time.

There was no sign of recurrence on the right side nor in any organ or tissue except the other ovary, and it is a question whether this was a recurrence or another primary growth. I am inclined to the latter view for reasons to be stated later.

There were no adhesions, and removal of the growth was not difficult, requiring only the ligation of a small pedicle. But though the greatest care was used, it was found impossible to lift out the tumor without tearing it badly, owing to its very soft friable consistence.

Again the patient made an ideal recovery, and left the hospital three weeks after the operation in good condition.

Mrs. H. was a remarkable patient in some ways. She seemed to have no dread of an operation, suffered little from shock, nausea, or pain, and was smiling and cheerful on both occasions when I saw her the morning after operating.

She always seemed to have implicit faith in her physician and surgeons and to this absence of fear or dread I think her easy convalescence was in large measure due. Unquestionably

shock is largely due to the fear and dread of operation in most cases, and shock is responsible for most of the nausea and disagreeable after-effects of operation.

I heard from her through Dr. Gunning today and he tells me she is perfectly well and strong and vigorous.

I believe she will remain so, in spite of the fact that she has had two large malignant growths removed. I think so because in primary carcinoma of the ovary there is little chance for metastases to occur. I have seen several cases and operated upon two others and in all of them, though the growth in the ovary was large, there was no sign of any involvement of other organs and no adhesions between the ovary and adjacent tissues.

I have not been able to follow up these cases longer than a year or two, but when last heard from there had been no recurrence.

In this case I cannot conceive of a metastasis taking place from one ovary to the other without involvement of any other organ or tissue. And with a rapidly growing cancer, as this was, such involvement would have been manifest long before this time if it had occurred at the time the second ovary was attacked.

I feel quite sure, therefore, that we may regard these tumors as two primary growths, started possibly by the same underlying cause, and *possibly* at the same time, but having no anatomical connection, and no contiguity of diseased tissue. The fact that there was no recurrence at the site from which the first growth was removed, and that there were no metastases from it 8 months after its removal makes the prognosis good, for the second growth was unquestionably of the same nature as the first.

1418 L Street, N. W.

The International Congress on School Hygiene,

Which meets in Buffalo the last week of August, is being advertised by moving pictures all over the world, and they will also be used extensively at the meetings. Many notable delegates from abroad will be among the prominent speakers at the Congress. Among matters that will be brought up for discussion are the school luncheon problem and the need of medical attention for over 15,000,000 school children.

Proceedings of Societies, Etc.

MEDICAL AND SURGICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

Reported by LEWIS C. ECKER, M. D.

This Society met December 5, 1912, Dr. A. R. Shands presiding.

Presentation of Pathological Specimens.

Dr. H. H. Hazen showed photographs of two cases of degeneration of the skin pigment. First, White spot disease: This presents an unusual microscopic picture, apparently a basophilic degeneration; second, a diffuse hyaline degeneration of the chorion: This involves the blood-vessels, sweat and sebaceous glands. In discussing the cases, *Dr. Kinyoun* spoke of the hyaline degeneration occurring in syphilis and yaws.

Dr. W. P. Carr reported a case of

Adeno-Carcinoma of Right Ovary Developing Later in the Left.—Operation. Recovery.†

DISCUSSION.

Dr. Hagner opened the discussion of *Dr. Carr's* paper. He agrees that fear predisposes to surgical shock.

Dr. Wellington spoke of a similar case, primary operation by *Dr. Kelley*, of Baltimore, secondary operation one year later, the case finally dying with metathesis in the pelvis.

Dr. Carr closed the discussion.

The following is an abstract of the paper of the evening, read by *Dr. James Dudley Morgan*, on

Hodgkin's Disease.

Definition: When there are painless progressive lymphatic enlargements in many parts of the body, with often enlargements of the spleen and sometimes of the liver, with the blood showing no marked alteration, save more or less anaemia, we call the affection Hodgkin's disease.

History: Glandular swellings, in various parts of the body, had long been noted by clinicians, but to Hodgkin, the pathologist of Guy's Hospital, who in 1832, published in the "Transactions of the Royal Medical and Chirurgical Society," a series of cases of enlargement of the lymphatic glands and spleen, do we owe the first

accurate clinical description of this disease; but it was not generally accepted as an entity until Wilks in 1865, described a number of cases and spoke of the affection as Hodgkin's disease. Virchow, Cohnheim, and later, Billroth and Trousseau had written of the similarity of the disease to leukæmia, even before the announcement of Wilks, and pointed out the essential factors of difference.

Etiology: The factor causing Hodgkin's disease is, for all purposes of a clear conception, as much unknown to-day as in the time of Hodgkin. Some of the patients who have developed Hodgkin's disease, had recently had some acute infectious disease, as measles or scarlet fever, or had suffered much with tonsillitis or with naso-pharyngeal catarrh.

The disease is much more common in the male than in the female; it occurs more in the young; it is found in all countries and in all climates, but seldom develops in the negro.

Morbid Anatomy: A definite picture can be given of the morbid processes of the disease and although the growth may take on a different appearance and morphologically undergo changes from a secondary infection, still the early reticular changes in the endothelium of the gland, with its distinct capsulation and its always lymphadenoid character, and if metastatic, of glandular growth, keep it within a correlation which entitles it to a description of its own.

Blood changes are not many or marked. There is generally an anaemia, which is represented in a decrease in the red corpuscular count, and the haemoglobin falls.

Symptoms: What brings the case under observation is generally the enlarged masses, situated on one or both sides of the neck, oftenest in the cervical region, and with these enlargements there may or may not be ill health.

On examination, nodular growths are found on side of neck and in the axillary and inguinal regions and in the breasts of the female; the spleen, liver, kidneys and thyroid may be enlarged, and later progress of the disease may indicate the involvement of the retroperitoneal and the mediastinal glands. The pressure from the nodular growths leads to much disfigurement, great embarrassment in breathing, difficulty in hearing and in swallowing, bronzing of the skin and neuralgic pains, all incident

†For paper by *Dr. Carr*, see page 91.

to an encroachment by the extensive hyperplasia of the lymphoid tissue. The patient becomes progressively anaemic, develops fever, sometimes jaundice, and ascites; the dyspnoea often becomes very marked and exhausting, and the patient steadily and surely fails.

Prognosis is most unfavorable. The glandular swellings may remain stationary for years and then, for some unknown reason, often following tonsillitis or some infection, may suddenly and rapidly enlarge.

Diagnosis: This is often difficult, unless a complete history of the case is known and a blood examination with a histological examination of the tissue growth is made. Longscope, Simmons and others have confirmed the findings of Dorothy Reed and placed Hodgkin's disease on a definite histological basis. Reed has shown the proliferation of the endothelial cells and excess of lymphocytes filling the lymph sinuses and later excess of fibrous tissue.

Lympho-sarcoma, tuberculosis, syphilis, lymphatic leukæmia are often confusing, unless every point is weighed in considering our diagnosis. The course of lympho-sarcoma is more rapid and more painful, tends to involve surrounding tissues and to have metastases; the glands show infiltrating fat lobules with numerous round cells, and there is a lymphocytosis in the blood. Splenic anaemia is only like Hodgkin's disease in the enlarged spleen and the few blood changes. There is a constant tendency to hæmorrhage, especially gastro-intestinal, and the lymph glands are never enlarged. On the examination of the blood would rest principally the diagnosis of lymphatic leukæmia; in both we may have enlargement of the spleen and lymphatics, but the spleen in leukæmia is much larger, and there is a well-marked leucocytosis. Tubercular glands are generally situated submaxillary, and do not as frequently involve both sides of the neck; they have, as does lympho-sarcoma, more tendency to break down and ulcerate; if physical signs are lacking, tuberculin should be tried, or a section of one of the glands made, which would show minute tubercles. The course of syphilitic glands is not so protracted; they have a tendency to grow smaller, and treatment would establish the diagnosis; a Wassermann or leutin test could be made.

Treatment: Permanent improvement cannot be looked for. The complete removal of the glands or their enucleation is invariably followed by recurrence, either at the former site or in some other region. The giving of arsenic is one of the very few remedies showing any actual benefit. The X-ray is a treatment which should always be tried, as it reduces the swelling and retards new developments; unfortunately on cessation of the treatment, the growths recur and treatment has to be again instituted.

DISCUSSION.

Dr. Reichelderfer said his first case, 10 years ago, showed some improvement with X-ray. To his mind the condition is closely related to malignancy.

Dr. Carr recalled a case in his experience that had been diagnosed by Dr. Osler as tubercular glands. He had operated on this patient under the same diagnosis. In Hodgkin's disease the glands are firmer and not involved to the degree found in tuberculosis. It is apparently a definite entity, a malignant disease. A case with a large abdominal tumor showed a transient improvement with X-ray. Another case was treated with amylopsin-trypsin. This is very painful. One patient receiving 100 injections.

Dr. Hagner had done fifteen operations on one case of gonorrhœa with inguinal adenitis. Operation showed no suppurating glands. Later a diagnosis of Hodgkin's disease was made. Patient died six months later.

Dr. Hazen said it was quite essential to remove a gland early. Should be one of the small glands. Splenic anaemia, mycosis-fungoides, and Mikuliez's disease are analogous in that they are aleukæmic lymphoses. They may all show a terminal leukæmia. The skin changes may be urticaria, vesicles, papules, tumor masses. These may be dark or light in color. All early stages do not show the pathological changes described by Dorothy Reed. Warton in early cases found a lymphatic hyperplasia—50 per cent.

Dr. Gwynn reported having had a case with general adenitis in which there was a strong family history of tuberculosis. There was pain over the spleen and slight cough; sputum negative. There was a reaction to 2 mmgs. Koch's tuberculin. At the tuberculosis hospital for

three months; returned with a diagnosis of Hodgkin's disease. The speaker thought that tuberculosis, lympho-sarcoma, and Hodgkin's were composite diseases.

Dr. Atkinson said he had a case under observation that he had treated with salvarsan, combined with X-ray. The patient first gained 4 pounds, but soon lost it. He mentioned two other cases and the ease with which the glands can be removed.

Dr. Borden has seen four typical cases, all showing marked bronzing. One at autopsy presented well-marked mediastinal glandular involvement. The doctor said there could be localized or general Hodgkin's. He had operated on a case showing a well-marked involvement of the right cervical glands with pressure symptoms. Removal was followed by the same condition in left cervical region and here operation was necessary. The case was discharged as an apparent cure. In a localized condition operation seems to be the logical treatment. The glands in Hodgkin's disease seem to be much easier to express than in inflammatory conditions.

Dr. Wellington mentioned two cases where a diagnosis could not be made from the sections.

Dr. Kinyoun said it is much harder to make a diagnosis later in the disease when more connective tissue will be found. Also difficult to differentiate from syphilis in the yellow and black races because of the prevalence of glandular syphilis. Said that a gland might break through the skin and practically enucleate itself, leaving a small scar. This does not occur in tuberculosis or syphilis.

Dr. Morgan closed the discussion.

NORFOLK COUNTY MEDICAL SOCIETY— SECTION ON OBSTETRICS AND DISEASES OF CHILDREN.

Reported by FRANK H. HANCOCK, M. D.

Is Obstetrics Surgery?

Was the subject of a paper* by Dr. Southgate Leigh, read before this section at its April, 1913, meeting, Dr. George T. Myers presiding.

In the discussion following, it having been asserted that Dr. Herbert Old had some method of diagnosing the progress of labor entirely by external examinations made over the abdomen

—a sort of laying on of hands as it were,—he was asked to explain this system; to tell when it had ceased to be necessary, in his experience, to differentiate, by vaginal palpation, between a brow or face presentation on the one hand, as against a vertex or a breach on the other? He was asked also if it was not of value to know about the degree of cervical dilatation, so that a busy practitioner might estimate the probable time of delivery, and in the meantime pay some other calls that might be pressing? Dr. Old was asked further if the vaginal examinations he had made had been followed by especially untoward results, and to explain what cataclysmic thing had lead him to abandon so time-honored and so practical a custom as a vaginal examination to diagnose position and progress.

Dr. Old said the question was entirely one of cleanliness; that as long as vaginal examinations were made, infections would occasionally occur, no matter how carefully the attempt had been made to sterilize the hands. Therefore, the only reasonable procedure was to dispense with vaginal examinations. In doing so, the accoucheur should avail himself of every opportunity to learn methods of external examinations.

In a series of experiments made several years ago, Whitridge Williams had shown that pyogenic micro-organisms were not found in the vaginal secretion of pregnant women unless introduced there from without. Kronig duplicated these experiments in the cases of 167 pregnant women, without finding streptococci in any. The gonococcus is the only pyogenic bacterium which can live and thrive in the vaginal secretion. Pyogenic organisms, however, are found on the margin of the hymen, and along the inner surfaces of the labia minora. Not even a sterilized speculum can be introduced through this vulval opening without carrying these organisms into the vagina, as Kronig, Menge, and Williams, have proven. How much more liable, therefore, are these organisms to be carried into the vagina, when the fingers and hand, however clean, are pushed past the inner surfaces of the labia and remains of the hymen?

For the same reason the speaker does not use a douche, the only function of which could be to carry these bacteria into the vagina and scatter them broadcast over as wide an area as possible. The old idea of a prophylactic douche

*For paper, see page 81.

had its origin in the scheme of destroying vaginal organisms and preventing auto-infection. Kallenbach, while chief of the Lying-in Clinic at Halle, resorted to its routine employment; but the statistics which he offered were materially improved when his successor, Fehling, discontinued the practice.

It seems that the most extraordinary care is essential. While not wishing to be considered extreme, it is a fact that organisms are sometimes carried into the vagina, with perhaps a resulting puerperal infection, pyæmia, and septicæmia, or at least a minor infection, which may be extremely uncomfortable.

During the second stage of labor the vulva should be covered with an aseptic pad—a towel soaked in bichloride solution. More facilities for infection are offered in the third stage of labor than in an ordinary surgical operation, and this stage must be conducted accordingly. We certainly agree that the generative tract after the birth of a child is to be regarded as a *noli me tangere*, unless an emergency, such as hemorrhage, or an adherent placenta, necessitates the introduction of the hand.

Finally, Dr. Old said that the percentages of abnormal puerpera have greatly decreased in Leopold's hands, in his report of 600 cases of labor, where no vaginal examinations were made, and in the hands of every obstetrician who has tried it. Whenever it became necessary to introduce the hand, a glove should be worn, the vaginal outlet being previously cleansed.

Dr. Lomax Gwathmey said that gloves should always be worn in cases of labor, without regard to time, place or person. It is a curious place anyway for the birth canal to be placed, between the bladder and the rectum, and only the most perfect asepsis could prevent some sort of infection. As ordinarily safe a procedure as is Cesarean section in the hands of experienced surgeons these days, it may become immediately fatal through infection, where there has been much obstetric abuse, such as the repeated introduction of hands; several sets of hands, where labor has been long delayed; and there have been various attempts to apply forceps. Carelessness of technic in the conduct of labor sometimes renders a Cesarean section inadvisable, and a surgeon may feel that in the interest of the mother he must resort to the miser-

able expedient of a craniotomy, and he may feel assured of his justification in doing so. Of course a decision of that nature is not made without the gravest sense of responsibility. He recently did a craniotomy where the exhaustion was too extreme to permit of anything but immediate emptying of the uterus, and where infection from previous manipulation might certainly have been considered a factor.

Dr. Myers took the ground that craniotomy is never justifiable; that it is nothing more than a "therapeutic abortion" which is without warrant or authority in the hands of any physician. He doubted if any doctor could show authority for such jurisdiction. He does not wear gloves, but he uses extreme care in the sterilization of his hands. Has never worn gloves since he left the Lying-in Hospital, New York, where it was the custom. Tears get infected from attempts to repair them at the time; and from examinations made after labor, to ascertain the extent and nature of tears to the perineum and cervix.

Dr. Myers very much regretted that negro doctors were not allowed to attend these meetings, and to profit by such discussions as we have had this evening.

Dr. Raiford, of Sedley, Va., was present and expressed the pleasure it had given him to listen to this discussion. He recalled vividly, as he listened, his own experiences in obstetrics, and the experiences of country practitioners in general; how difficult it was to even approximate asepsis, how much work it entailed, how much time it consumed, how lonely and how desperate the situations became at times without a soul to share the responsibility,—not even a midwife.

Dr. Southgate Leigh, in closing, remarked that Dr. Raiford was fortunate in not having to cope with the nefarious midwives, who were considerably more meddlesome, and far more greatly to be feared, than a mild mannered member of the family who dared not do more than directed to do.

A country doctor, or any other doctor, can be clean if he will only take the time. There is not a place in the world so primitive that it cannot be made aseptic. The country doctor does, however, labor under enormous difficulties that we, who haven't seen them, are incapable of appreciating.

Dr. Leigh prefers a lysol douche, when he uses any douche at all, because it is somewhat lubricating, and bichloride is not.

Section adjourned.

Analyses, Selections, Etc.

Crotalin in the Treatment of Epilepsy and Nerve Disorders.

Since the introduction of the hypodermic use of crotalin in the treatment of epilepsy by R. H. Spangler in 1910, many favorable reports concerning the use of this agent in epilepsy as well as in other functional nervous disorders have appeared from time to time. The latest of these reports, by J. B. Woodruff, (*N. Y. Med. Jour.*, Jan. 11th., 1913) is in full accord with those which attribute to it marked beneficial effects upon certain nervous diseases.

Crotalin is the dried venom obtained from the species of snake named *Crotalus horridus*, or rattle-snake. This complex, scaly substance is purified, sterilized and diluted in various required strengths and then placed in sealed ampoules. The stated dose of the drug is 1-250 to 1-25 grain. The chief constituents of crotalin are said to be "hemorrhagin" (90 per cent) which has a special affinity for the endothelial cells of the blood and lymph-vessels, and "neurotoxine" (10 per cent) which has an affinity for the cells of the nervous system.

Although the definite therapeutic action of crotalin is not as yet understood, Woodruff is of the opinion that its ability to block undue outside stimulation on the nerves of special sense, is one of its chief effects. This is shown in cases of insomnia in which the drug causes a refreshing sleep without signs of narcotism.

Since patients treated with injections of crotalin show a marked improvement in their general condition and well-being, Spangler believes that it has a decided influence in revitalizing the functions of various organs. Woodruff has noted in several cases, a marked leukocytosis following the injection of crotalin, the leukocytosis occurring about the fourth day after injection. To this, he attributes the beneficial effects obtained by some in the treatment of tuberculosis by means of crotalin injections.

It is, however, in epilepsy of the so-called

idiopathic type, that crotalin has given the best results. Epilepsy resulting from trauma or other causes is little, if any benefited by the drug. According to Spangler, Tachenheim, Woodruff and others, crotalin treatments will modify the severity of epileptic attacks, often changing their character from "grand mal" to "petit mal." The intervals between the attacks will be lengthened and the mentality of the patient will be much improved.

The initial dose of crotalin for an adult suffering from epilepsy is 1-250 grain given hypodermically, preferably into the posterior aspect of the arm or into the back. The injections should be given deep into the tissues or into the muscle. The injections are often followed by a marked inflammatory reaction and rather severe pain at the site of the injection. This lasts from two to five days and then disappears. The size of the dose and the susceptibility of the patient largely determines the severity of the reaction. The pain and swelling, according to Woodruff, is best allayed by application of the ice bag and wet compresses of a saturated solution of magnesium-sulphate. There is as a rule no general reaction following the injection of the stated doses, providing that they are given as directed and not oftener than once in every five to seven days. Woodruff has never seen an untoward effect follow the injection of crotalin. Nevertheless, a fatal case following the too frequent injection of the drug in a child has been reported (*Merck's Annual Report*, 1912).

Certain forms of ties, neuralgias, sciatica and other conditions of the nervous system are said to have been markedly benefited or cured by means of crotalin injections. When used in these conditions, Woodruff advises that the dose should not exceed 1-150 grain, especially when the injection is given about the head or neck. The injection should be made in the vicinity of the affected nerve but not into the nerve, and care should be exercised that no blood-vessel is entered.

Amongst other conditions reported as being favorably influenced by the injection of crotalin, are asthma (of nervous origin) in which Woodruff states that improvement was noted in every case in which it was tried; and cases of debility associated with nervousness and insomnia.—(*Medical Review of Reviews*, May, 1913.)

Vomiting in Tuberculosis.

After prolonged and careful investigations of this subject, H. Paillard has come to conclusions differing greatly from the classical views.

Concerning the etiology, several factors must be considered: 1. Overloading the stomach. Heavy meals bring on Morton's cough, and, therefore, the patient must be directed to adopt fragmentary feeding. 2. Fatigue after meals. This cough is often met with among laborers, but is not frequent among the well-to-do, who can take a complete rest after meals. 3. The period of the disease. Morton's cough is much more common in the first stages of phthisis. 4. The locality of the pulmonary lesions. It is very frequent in the common phthisis of the apices, but very rare when pleurisy has prevented movements of the left side of the diaphragm. 5. The "status dyspepticus." This has been considered by all the classical writers as an essential factor, but the author thinks it is a mere accessory because it is often absent, and, further, cough is not constant in all dyspeptic patients.

There are three varieties of Morton's cough: First, and most typical, is that following the onset of phthisis; second, the cough of the later stages of the disease—less frequent, less regular, and more painful; lastly, the variety which bears no relation to meals, but occurs in the morning, especially in patients with pharyngitis, and is not at all peculiar to consumptives. The author insists upon the feeling of breathlessness appearing after meals and before the cough.

The pathogeny of Morton's cough has been much discussed, but the author enters again into its discussion. He favors the mechanical theory of its origin, and shows the Peter's theory is vague and feeble. According to Paillard the vomiting is due, as in whooping-cough, to the jolts and jerks of the cough, and respecting this, he emphasizes the importance of the condition of the diaphragm in the causation of the latter. Experimentally, he has noticed that fixation of the left side of the diaphragm almost prevents vomiting. Clinically, he has seen that Morton's cough seldom occurs in patients the left side of whose diaphragm has been fixed by a former pleurisy. Conversely, consumptive patients whose left diaphragm has normal or exaggerated movements when breathing or coughing, are

very often afflicted by the stiffness of the diaphragm and the "thoracic aspirations" (Arnozan) is deficient; in the second case, i. e., exaggerated movements, the stomach is directly injured and the thoracic aspiration is at a maximum.

As to treatment, Paillard recommends the administration after each meal of a few whiffs of oxygen, to be repeated if necessary. They relieve the dyspnea so common after eating, and reduce the desire for increasing the expansion of the thorax and diaphragm; thus, the stomach is given sufficient rest to enable it to evacuate its contents at a normal rate. This method, as well as the recommendations implied in discussing the etiology, has given excellent results. —(*Medical Progress*, Paris.)

Treatment of Typhoid Fever.

O. H. Brown, St. Louis, referring, in the course of an article with the foregoing title, to its physiology, concludes that virulent typhoid bacilli in the unimmunized body produce (1) a mild, diffusible, extracellular toxin; (2) a potent intracellular toxin; (3) injury to the intestinal mucosa; (4) general bacillemia; (5) a toxemia, the result of the specific toxin and the other absorbable toxin from the alimentary canal; (6) a slight loss of digestive power; (7) a marked increase of the oxidative and heat-producing factors of the body; (8) a hyperplasia of the lymphoid tissue of the body; and (9) complications which vary greatly.

Discussing drugs that have a specific effect, he says that recently there has appeared a most modest and scientific article by Frazier detailing sensational results in the treatment of typhoid with ipecac. Frazier took the ipecac treatment himself for tropical dysentery with entirely satisfactory results, and, on this account, conceived the idea that the same treatment might be equally as efficacious in typhoid fever; consequently, he tried the treatment in 6 cases and reported his results in a recent issue of the *Medical Record*. The treatment was not administered in any case until after the diagnosis was made positive by the serum-test. The ipecac was administered in salol-coated capsules in order to avoid its solution in the stomach and the consequent nauseating effects of the drug. At first, he gave one dose of 30 gr. in twenty-four hours. Later, he gave this amount

in divided doses. In his last two or three cases he gave 12 gr. doses every six hours. In the first case, the treatment was begun on the sixth day and there was no fever after the ninth day. In the second case the treatment was instituted on the sixth day and there was no fever after the twelfth day. In the third case the treatment was begun on the fifth day and the temperature remained at the normal point after the ninth day. In the fourth case the ipecac was given on the fifth and the fever was absent after the eighth day. In the fifth case the treatment was instituted on the seventh day and there was no fever after the tenth day. In the sixth case the treatment was begun on the fourth day, and on the seventh day the temperature became normal.

Whether Frazier was correct in his diagnosis in every instance or even in one instance we cannot be sure. But if his diagnosis were correct in all or even in one of the cases he reports, his results are apparently marvelous. If the effects of ipecac on the typhoid bacilli are as decisive as he reports, we will not have to wait long for confirmation of his work.

Vedder found that a 2 per cent solution of a fluid extract of ipecac inhibits the growth of the dysentery bacilli. The Shiga strain of the bacilli was more affected than was that of Flexner. Vedder, however, does not recommend the use of ipecac in the treatment of bacillary dysentery, as he thinks it would be difficult to give sufficient ipecac to make a 2 per cent solution of it in the intestine. It seems, however, to the writer that there might be some virtue in using the ipecac as the dose would be mixed, not with entire contents of the intestinal canal but with only a few ounces of it; and, therefore, the strength of the ipecac solution might approximate that which would be destructive for the bacilli. What applies to the dysentery bacilli may very likely also apply to the typhoid bacilli, as the two types are closely allied members of a common family.

Brown summarizes and concludes as follows:

1. The ideal prophylactic treatment of typhoid is the proper disposal of human excreta. Inoculation of dead typhoid bacilli are of very great importance in preventing typhoid and should be used wherever there is suspicion of danger.

2. Inoculations of dead typhoid bacilli are

of pronounced benefit in dealing with typhoid carriers and preventing relapses during the course of an attack of the illness.

3. A specific serum of practical value is yet to be found. The results thus far obtained are encouraging.

4. Frazier has recently reported that he aborted 6 cases of typhoid fever with large doses of ipecac administered in salol-coated capsules.

5. The diet in typhoid fever should consist of a small amount of protein, a small amount of fat, and a large amount of carbohydrate. The preferable protein food is milk and albumin water. The preferable fat is cream, and the preferable carbohydrate is lactose. A pound of the latter may be administered in twenty-four hours.

6. The above diet should reduce the grade of toxemia and should maintain the patient's weight, and should therefore increase his immunizing power.

7. The typhoid patient should be regularly given copious supplies of water. Cracked ice may be taken continuously during waking hours.

8. Pyrexia may often be controlled by keeping the patient in a cold room where the air is kept freely moving, and by keeping the patient very lightly covered. Arms and legs may require heavy covering. — (*Interstate Medical Journal*, May, 1913.)

Book Notices.

Infant Feeding. By CLIFFORD G. GRULEE, A. M., M. D., Assistant Professor Pediatrics, Rush Medical College; Attending Pediatrician to Cook County Hospital. 8 vo. 295 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Cloth. \$3.00 net.

This book considers infant feeding from four general points of view: Fundamental Principles of Infants' Nutrition, Nourishment of the Infant on the Breast, Artificial Feeding, and Nutrition in Other Conditions, each part being divided into a number of chapters. It strikes us that the author has accomplished quite successfully the two things he set out to do, i. e., to bring our knowledge of the subject up to the present, and to put forth the application of these principles in such a simple and

practical way that they may be readily understood by the average physician. He does not seem to countenance the complicated measures advocated by some of the ultra-scientific pediatricians, as, for instance, the so-called percentage method of infant feeding, about which he says "Such formulae are not only unnecessary, but absolutely harmful,***." The scope of the work is limited especially to the first year of life, and on the whole the views expressed impress us as those of one who knows his subject without being an extremist.

Text-Book of Medical Chemistry and Toxicology. By JAMES W. HOLLAND, M. D., Professor of Medical Chemistry and Toxicology, Jefferson Medical College, Philadelphia. Third Revised Edition. 8 vo. 655 pages, fully illustrated. Philadelphia and London. W. B. Saunders Company, 1911. Cloth, \$3.00 net.

Intended primarily as a text-book for medical students, this volume will demand consideration from any teacher of the subject where a text is being sought for guidance of the student over this usually dry and difficult branch of medicine. The large experience of the eminent author has materially enabled him to present a book that is made further useful by the sections on medical physics as well as on the toxicologic bearing of various preparations. Because of lack of space, there is a minimum of discussion of the rare elements and compounds that are never encountered in medicine.

Editorial.

The Biochemistry and Chemotherapy of Tuberculosis.

A new turn has been given to the study of bacteriology and various allied sciences by the work of Ehrlich and his colleagues. Their numerous attempts to obtain a chemical substance or group of chemical substances which could destroy trypanosomes in the infected body without injuring the body have been followed by the medical world with great interest. The development of salvarsan was a direct outgrowth of this work. There is evidence that many attempts will be made within the next few years to attack various bacterial and protozoal diseases in this way. Studies in tuber-

culosis from this point of view are already appearing. Dr. Gideon Wells and his co-workers have issued several reports upon experimental attempts to counteract tuberculosis in animals by means of various drugs. At present our means of treating tuberculosis is indirect. We attempt to build up the strength of the patient by means of rest, feeding, etc. We attempt occasionally to increase his resistance to the specific properties of the tubercle germ by the use of tuberculin, but we have no drug which we can administer to the patient with the reasonable expectation that it will attack and destroy the germs in the body and do no harm to the body.

The requirements in the case of tuberculosis are peculiarly difficult. The germ is not in the blood in most cases, but lies outside of the circulation towards the center of a nonvascular collection of cells and tissue which we call the tubercle. Moreover, the germ itself is protected by a resistant, waxy, or fatty material against permeation by chemicals.

The studies under consideration were made with some twenty odd dyes related to the trypan red and methylene blue series. By making inoculations of varying amounts of these dyes subcutaneously, it was found possible to stain during life the tuberculous tissue. In other words, the tubercle took up the dye and it was found that the dye was not injurious to the animal up to the end of 126 days. However, only a few of the bacilli were stained, most of them remaining unstained. They could not find that the dye did any particular damage to the stained bacilli.

Methylene blue seemed to give results that were fairly satisfactory. The stain penetrated the tubercle, and it did no harm to the guinea-pig. The bacillus takes up the stain in slides, although it does not do so apparently in the tuberculous lesion. Moreover, in cultures the dye seems to be injurious to the tubercle bacillus. Von Linden, however, claims that the bacilli actually were stained in their position inside the tubercle. He also claims that the use of methylene blue led to the recovery in from one-half to two-thirds of his experimental animals.

Experiments with the various fat dyes, such as sudan 3 and scarlet R, indicated that they did not fulfil the necessary conditions.

H. T. M.

American Medical Association.

The sixty-fourth annual meeting of the Association, in Minneapolis, June 17-20, promises to be as attractive in both its social and scientific program as any of its predecessors. While there are a large number of hotels in Minneapolis, St. Paul also expects to take a prominent part in the entertainment of the visitors. The usual special transportation and hotel rates have been secured. Dr. S. Marx White, Donaldson Bldg., Minneapolis, chairman of the committee on hotels, will give any assistance possible.

With the exception of the opening meeting on Tuesday morning, and the President's reception and ball, Thursday evening, all meetings will be held in various buildings on the grounds of the University of Minnesota. Complimentary luncheon will be served members at the University each day. All members are urged to register promptly so as to receive the badge, which is necessary for admission to the many entertainments which will be provided not only for the doctors but also for the ladies accompanying them. Minneapolis is a beautiful city, and an excellent starting point for many interesting excursions east or west.

Dr. Abraham Jacobi, New York, is president, and Dr. John A. Witherspoon, Nashville, Tenn., president-elect.

Virginia's delegates to this meeting are Drs. W. E. Anderson, Farmville, John Staige Davis, University, and J. Shelton Horsley, Richmond.

Medical College of Virginia and University College of Medicine Amalgamated.

At a meeting of the newly elected teaching staff, May 9, Dr. Stuart McGuire was elected dean of the faculty, and Dr. A. L. Gray, chairman of the medical faculty; Dr. R. L. Simpson, chairman of the dental faculty; and A. Bolenbaugh, B. Sc., chairman of the pharmaceutical faculty. Mr. J. R. McCauley, formerly secretary of the Medical College of Virginia, was elected secretary of the consolidated colleges and also of the faculty.

Memorial Hospital has been turned over to the new Board of Visitors for the use of the new college, and Virginia Hospital will probably be closed about the first of June. Miss Randolph, of Virginia Hospital, will succeed Miss Van

Vort as superintendent of nurses, the latter having recently accepted a similar position at the Stuart Circle Hospital, to be opened shortly. Dr. R. W. Miller will be manager of the Memorial Hospital.

Commencement exercises of both medical schools will be held during the week beginning May 25.

American College of Surgeons.

At a meeting of 450 prominent surgeons of North America, in Washington, May 5, as a result of invitations extended by a committee of some of the country's most noted surgeons, the above Association was organized. The object of the College "shall be to elevate the standard of surgery, to provide a method of granting fellowships in the organization and to formulate a plan which will indicate to the public and the profession that the surgeon possessing such a fellowship is especially qualified to practice surgery as a specialty." The requirements for fellowship are scientific attainments, surgical ability and unquestioned moral character, measured by the College's standards. Fellows shall also have had five years in the practice of surgery or a surgical specialty. To facilitate the work of the Committee on Credentials, it would be well for each application for fellowship to be accompanied by recommendations from one or more well known surgeons. The first convocation for the conferring of fellowships will occur in November, 1913. Upon election to fellowship, each member will be required to pay an initiation fee of \$25; the annual dues are \$5.

Officers elected are: President, Dr. J. M. T. Finney, Baltimore; vice-presidents, Drs. W. W. Chipman, Montreal, and Rudolph Matas, New Orleans; treasurer, Dr. A. J. Ochsner, Chicago, and secretary, Dr. Franklin H. Martin, Chicago.

The Montgomery County (Va.) Medical Society

Held an interesting meeting at Christianburg, May 1, with an attendance of 17 physicians. Four new members were elected, making a total of 21 regular and 2 honorary members. Dr. A. M. Showalter reported the meeting. After all business had been acted upon, the president, Dr. H. D. Ribble, introduced Dr. P. B. Barringer, of V. P. I., who made an address on

Medical Ethics. He based his address on the Oath of Hippocrates, and stated that though it was written over 2,500 years ago, it was a code of ethics applicable to all times and ages, and consequently should be the basis of any medical ethics adopted. The talk was both forceful and interesting. The Society then adjourned to meet in July.

Dr. Friedmann Tuberculosis Treatment.

The representatives of the Public Health Service, appointed to investigate Dr. Friedmann's treatment, do not yet seem overly enthusiastic over results, though, as they state, in their report, time is necessary "in order to properly evaluate the effect of therapeutic measures." Until satisfactory results are insured, it is their opinion that tuberculosis patients should be advised against any lessening of well-known methods of treatment "which not only have effected cures but which have reduced the incidence of the disease."

Dr. Joseph A. White Honored.

The many friends of Dr. J. A. White, of this city, will be pleased to hear of his election as president of the American Laryngological, Rhinological and Otological Society, at its recent meeting in Washington. This Society is composed of leading specialists in these branches in this country, and Dr. White's election was an especial honor in view of the fact that he was not even in attendance at the meeting.

The Southside Virginia Medical Association

Will hold its next quarterly meeting in Petersburg, June 10. Dr. Bernard Barrow, of Barrow's Store, is president, and Dr. E. F. Reese, of Courtland, secretary and treasurer.

Dr. C. C. Coleman,

Who was for several years associated with Dr. J. Shelton Horsley, has moved to 420 West Grace Street, this city, and will limit his practice exclusively to general surgery.

Dr. A. E. Turman,

Of this city, has been fortunate in securing an appointment in the Piskacek Frauen Klinik, Vienna, **one of the largest obstetrical hospitals in the world**, in which there are more than

3800 obstetrical cases a year. The force in this hospital consists of one professor, four assistants, ten doctors and eighty nurses, and Dr. Turman is the only American. The appointment is quite an honor in view of the fact that it requires not only special study in obstetrics, but also a thorough knowledge of the German language.

Dr. Turman left Richmond the first part of July last year, and, before going to Vienna to study, spent about two months in traveling in Palestine, Egypt and Italy. He is expected to return home about the middle of the summer.

Dr. Arthur S. Brinkley

Is now associated with Dr. J. Shelton Horsley, in this city, as first assistant, succeeding Dr. C. C. Coleman. Dr. Brinkley graduated at the Medical College of Virginia two years ago, and was president of the student body during his senior year. He has just completed a term of service of about two years at the Polyclinic Hospital New York City.

Lord Lister's Memory to be Honored.

As a memorial to the late Lord Lister, one of the wards of the Royal Infirmary, Glasgow, Scotland, in which he first used his antiseptic methods of practice, is to be reserved, and one part will be refurnished as it was in Lord Lister's time, and the other part will be used as a museum in which it is desired to place any letters, books or other objects with which Lord Lister was personally associated. Prof. John Teacher, of the Royal Infirmary, has charge of the loans or donations.

The North Carolina State Medical Society

Will hold its annual meeting at Morehead City, June 10-12, with headquarters at the Atlantic Hotel. Dr. J. P. Munroe, Charlotte, is president, and Dr. John A. Ferrell, Raleigh, secretary.

The Association of Surgeons of the Southern Railway

Will hold their annual meeting in Norfolk, Va., at the Lynnhaven Hotel, for three days beginning June 3. Drs. H. W. Blair, Sheffield, Ala., and J. U. Ray, Woodstock, Ala., are president and secretary, respectively.

Dr. Albert Anderson,

Of Raleigh, N. C., a graduate of the University of Virginia of the class of '88, has been elected superintendent of the North Carolina State Hospital for Insane at Raleigh, *vice* Dr. L. J. Picot, who has resigned to take up practice in Littleton, N. C.

The American Proctologic Society

Meets this year in Minneapolis, June 16-17, under the presidency of Dr. Louis J. Hirschman, of Detroit. Dr. Lewis H. Adler, Jr., of Philadelphia, is secretary. Headquarters will be Hotel Radisson.

Norfolk Protestant Hospital To Have Another Building.

At a meeting of the Board of the Hospital, May 13, it was decided to erect a new building to cost \$10,000 for accommodation of colored patients.

Changes in Medical Corps, U. S. Navy.

The following changes of interest in Virginia were reported for the week ending May 10, 1913:—

Surg. G. L. Angeny, to Navy Recruiting Station, Richmond, and

Asst. Surg. W. C. Lyon, M. R. C., from Navy Recruiting Station, Richmond, to Navy Recruiting Station, Galveston, Texas.

Medical Association of the State of Alabama.

At the annual meeting of the Association, in Mobile, the middle of April, Dr. R. S. Hill, of Montgomery, was elected president, and Dr. James Norment Baker, also of Montgomery, was re-elected secretary.

The South Carolina Medical Association,

At its annual meeting in April, elected Dr. William Weston, Columbia, president, and Dr. E. A. Hines, Seneca, secretary-treasurer.

Measles Still in Pittsburgh, Pa.

The epidemic of measles seems to still continue in Pittsburgh, 162 cases being reported during week ended May 10, 1913, which made a total from the beginning of the outbreak, November 1, 1912, of 8,879 cases with 140 deaths.

The American Academy of Medicine

Will hold its thirty-eighth annual meeting in Minneapolis, June 13-15, at the Leamington Hotel. The papers to be read will be devoted to the discussion of the "Physical Bases of Crime." Dr. Ray Lyman Wilbur, San Francisco, is president, Dr. Charles McIntire, Easton, Pa., secretary and treasurer.

Dr. C. C. Hudson,

Health officer of Danville, Va., recently addressed the Civic League, of that city, and outlined his plans for improving the health of that city. During the summer months, he expects to pay especial attention to the milk supply, sanitation and the extermination of flies. Dr. Hudson has been in charge of the health work in Danville for less than two months, but has already aroused much interest in his work.

New Orleans to Have Free Milk Depots.

We note that it is expected to establish free milk depots in New Orleans shortly to furnish the pasteurized or modified milk to the infants of the indigent. This should be a big help in the conservation of the lives of the babies in that city.

The Georgia Surgeons' Club

Was organized during the recent meeting of the Medical Association of that State, the membership to include physicians in Georgia who are actively engaged in surgical work. It is the purpose of the organization to meet once a year in such local cities as have hospital facilities, for the purpose of holding clinics. Dr. E. C. Davis, of Atlanta, was elected president, and R. M. Harbin, of Rome, secretary.

Army Medical Corps Examinations.

Preliminary examinations for appointment of First Lieutenants in the Army Medical Corps will be held July 14, 1913 at points to be hereafter designated. Full information concerning these examinations can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C." The essential requirements to secure an invitation are that the applicant shall be a citizen of the United States, of good moral character and habits, and between 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of

Doctor of Medicine, and shall have had at least one year's hospital training as an interne, after graduation.

In order to perfect all necessary arrangements for the examination, applications must be completed and in possession of the Adjutant General at least three weeks before date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present forty vacancies in the Medical Corps of the Army.

The American Medical Editors' Association

Will hold its annual meeting in Minneapolis, Minn., June 16, the day preceding the meeting of the A. M. A. Dr. Thomas L. Stedman, of the New York Medical Record, is president, and Dr. Joseph MacDonald, Jr., of the American Journal of Surgery, of New York, secretary-treasurer.

The American Medico-Psychological Association

Will hold its annual meeting at Clifton Hotel, Niagara Falls, June 10-13. Dr. James T. Searcy, of Tuscaloosa, Ala., presiding. Dr. Charles G. Wagner, of Binghamton, N. Y., is secretary.

The United States Civil Service Commission

Announces an open competitive examination for physician, for men only, on June 4, 1913. From the register of eligibles resulting from this examination certification will be made to fill vacancies as they may occur in different branches of the service. The especial vacancies to be filled at this time are in the Isthmian Canal Service at entrance salaries of \$1,800 per annum, and a vacancy in the position of acting assistant surgeon in the Public Health Service at Jacksonville, Fla., at a salary of \$500 per annum. Acting assistant surgeons in the Public Health Service are required to devote only part of their time to the Government service.

It is also expected to fill a vacancy at \$150 a month, for service in the Insane Asylum at Ancon, Canal Zone, for which an unmarried man is desired. The appointee to this position must be experienced in the treatment of the insane, as one without this experience cannot be used.

The scope and character of the examination, as well as the requirements for the different

branches of the service and salaries of each, are contained in section 192 of the Manual of Examinations for the Spring of 1913, which, with application Form 1312, may be obtained from the United States Civil Service Commission, Washington, D. C. Prompt attention is necessary.

The Instructive Visiting Nurses' Association of Richmond,

On its Tag Day, early in May, received nearly \$4,000 to assist in the charitable work done by this organization.

Medical Meetings Abroad This Summer.

In addition to the meeting of the National Association for the Prevention of Infant Mortality, to be held in London, August 4 and 5, and the International Congress of Medicine, likewise to be held in London, August 6-12, the International Congress of Neurology and Psychiatry will hold its third annual meeting at Ghent, August 20-26. Physicians who contemplate trips abroad this summer, will thus have an opportunity of attending the meetings of these Associations as well as enjoying a summer outing.

Smallpox in Virginia.

During March, 1913, there were 125 cases of smallpox reported in this State, the largest number of cases being in Carroll, Mecklenburg, Smyth and Halifax, in the order named, the first named having 35 of the whole number.

The Travel Study Tour

Of about seventy-five American physicians to the XVIIIth International Congress of Medicine, will sail from New York July 3. The chairman is Dr. W. B. De Garmo, of New York, and Secretary, Dr. Richard Kovacs, 236 East 69th St., New York. In co-operation with the International Committee for Post-graduate Medical Education, arrangements have been made for visiting clinics and hospitals at Paris, Munich, Vienna, Berlin, Dresden, Cologne, and Brussels, and to inspect the health resorts of Carlsbad, Marienbad, Nauheim, Wiesbaden, Hamburg, etc. The party will finally attend the International Congress of Medicine August 6th to 12th in London.

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Original Communications.

HYPERTHYROIDISM AND ITS TREATMENT.*

By STUART McGUIRE, M. D., Richmond, Va.
Professor of Clinical Surgery, University College of
Medicine.

The thyroid gland is essential to life. Its functions are carried out by an internal secretion which reaches the general system by way of the lymphatics.

If its secretion is deficient symptoms of chronic cachexia result. The metabolism of the body is depressed. Growth is lessened and the skeletal system is dwarfed. Cells fail to reach their proper development and connective tissue remains myxomatous giving to the skin a dry massive elephantile appearance. The hair is coarse and shows deficient nourishment. The nervous system halts in development and mentality does not rise above the level of the infant. Physically and intellectually the victim of thyroid poverty is less a man, more a beast.

If on the other hand thyroid secretion is excessive, symptoms of metabolic riot follow. Heat production and gaseous interchange are rapid. The body tissues are stimulated to a course of wasting dissipation. There are seen tremor, sweating, tachycardia, muscular weakness, loss of weight and feverish mental activity. The evidence of thyroid excess suggests the entrance of tragedy into the life of its subject.

The pathological condition due to deficient thyroid secretion is technically known as hypothyroidism and is seen in actual practice in the form of cretinism and myxedema. It is treated by supplying the deficiency artificially, usually by the administration of thyroid extract. The pathological condition due to excessive thyroid secretion is known as hyperthyroidism and is

most frequently met with in the form of exophthalmic goitre. It is treated by measures intended either to reduce the supply or neutralize the activity of the thyroid secretion.

The medical treatment of hyperthyroidism consists primarily in rest. If possible the patient should be placed in a hospital and for a time confined to bed. An ice-bag over the heart is often of temporary benefit. Various drugs have been advocated by different authorities, but no two seem to be able to get the same results in either experimental or clinical work. All agree that iodine and thyroid extract should not be employed.

As myxedema and exophthalmic goitre are the antithesis of each other, one of the earliest treatments consists in injecting the serum of the blood of a patient suffering with myxedema into the circulation of the victim of hyperthyroidism. Some temporary good resulted. The next effort in this direction was the use of a serum called antithyroidin, obtained from the blood of a thyroidectomized sheep. Theoretically, the blood of an animal whose thyroid has been removed should contain the toxin which would combine with and neutralize thyroglobulin; but the remedy failed to prove of therapeutic value.

Several years ago a cytolytic and antitoxic serum was introduced by Rogers and Beebe. The reputation of the originators and the good results reported by those who first used it encouraged the profession to hope that a specific for the disease had at last been found. This expectation has not been realized. In a recent personal communication, Dr. Rogers states that he regards the serum as very valuable in the treatment of toxemic patients, but it is merely an adjuvant for helping out a small number of cases. He regards as the rational treatment of hyperthyroidal disturbances the ligation of ar-

*Read before the Tri-State Medical Association, at Norfolk, Va., February 19-21, 1913.

teries or the extirpation of limited foci of disease, which, by pressure upon the sound parts of the gland, may interfere with the nutrition of the organ.

While as yet serum therapy has been unsuccessful, the work of men like Rogers and Beebe will eventually triumph. The day will come when some specific of animal origin will be discovered that will act as beneficially in exophthalmic goitre as thyroid extract does in myxedema.

Electricity, the mysterious agent which has promised so much and accomplished so little in the treatment of various diseases, has, of course, been tried for hyperthyroidism. Faradism has a few advocates. Galvanism, especially in the form of electrolysis and cataphoresis, has been extensively employed. The X-ray seemed at one time to have established a place for itself. Beck reports good results in the treatment of small goitres. Mayo still uses it in certain cases as preliminary to operation, claiming it produces sclerosis of the gland. Van Eiselsberg, Deaver and others, after extensive trial say it has positively no beneficial effect.

Injections into the gland of alcohol, iodine, carbolic acid and iodoform emulsion have been tried and abandoned. Abbey has used radium and reports good results. Porter has published a number of cases markedly improved by the injection of boiling water, the technique being the same as that employed by Wyeth in the treatment of angioma. This treatment causes a coagulation of the blood and acts on the principle of a ligation operation. There would seem to be little to commend it.

Statistics showing the results of non-operative treatment are meager. White followed up the histories of 102 cases admitted to Guy's Hospital between 1888 and 1907. In White's series 60 per cent. recovered, 20 per cent. were improved, 5 per cent. had not done well, and 15 per cent. had died.

The surgical treatment of hyperthyroidism owes its conception to the accidental observation that patients operated on to relieve them of the mechanical or pressure symptoms of goitre, were also cured of their toxic symptoms, such as tachycardia, tremor, nervous irritability, muscular weakness and loss of weight.

The development of the surgical treatment is largely due to the work of Theodor Kocher, of

Berne, Switzerland. A generation ago the operation of thyroidectomy was considered one of the most dangerous in surgery. Kocher's mortality in his first seventy cases of simple goitre was 40 per cent.; Charles H. Mayo's mortality in his first sixteen cases of exophthalmic goitre was 25 per cent. It is no wonder that at one time the operation was regarded by the majority of surgeons as unwarranted, and it is not surprising that there are still to-day some among the older practitioners who hesitate to advise a patient with goitre to seek operative relief except as a last resort. Times have changed, however, and the operation has been rendered comparatively simple and safe in experienced hands.

Kocher, with a courage that seems marvelous to the present generation of surgeons, persisted in his work until he finally established a technique that has reduced the mortality in his last one thousand cases of goitre to three-tenths of one per cent. This was accomplished by:—

1. Early operations on more favorable cases.
2. Improved aseptic methods to prevent infection.
3. Better methods of anesthesia.

4. An exposure which gave ability to control hemorrhage and avoid injury to certain structures of the neck.

All operations have for their object the diminution of thyroid secretion. This is accomplished in one or two ways; either by lessening the amount of the blood going to the gland by ligation of one or more of the principal arteries, or by reducing the amount of secreting structure by excision of part of the gland. Crile thinks, in both ligation and excision, the benefit results not only from lessening the blood supply and diminishing the secreting structure, but also from cutting off the nerve supply.

Ligations are indicated in very mild cases where this operation may be all that is necessary to effect a cure, and in very bad cases as a preliminary to a more radical operation when the condition of the patient improves sufficiently to make it safe.

The operation of excision usually consists in the removal of one lobe and the isthmus. The difficult and important question that confronts the surgeon in every case is how much thyroid tissue he should take out. If he removes too little the symptoms of hyperthyroidism continue;

if he removes too much the symptoms of hypothyroidism develop. Rogers has impressed the fact that operations which give brilliant immediate results are often followed by remote difficulties and complications. A compensatory hypertrophy of the remaining lobe may develop with persistence of exophthalmic goitre symptoms, or degenerate changes may take place in the tissue left, with the development of myxedema.

Until we know more, surgery should not be too radical. If an error is made, it had better be on the side of conservatism, as it is easy to take out more, but impossible to put back any of the tissue which has such an important effect on the physical nutrition and nervous equilibrium of the individual.

Mayo states that the thyroid gland has a "factor of safety" of six; in other words, that one sixth of the gland can carry on its work. The removal of one lobe and the isthmus means the excision of about three-fifths of the gland, and this is the common practice of most surgeons.

The dangers attending the operation of partial thyroidectomy were formerly discussed under numerous heads. Infection, hemorrhage and shock have been so minimized by modern methods that they are not more likely to occur than during other major operations. Injury to the recurrent laryngeal nerve can be avoided by care in ligating the inferior thyroid artery, and is an accident less frequent than cutting the ureter in hysterectomy. Tetany can be prevented by leaving the posterior capsule of the gland, thus assuring the preservation of the parathyroids. Myxedema can be guarded against by leaving enough active thyroid tissue to carry on the function of the gland.

The danger of the anesthetic has been much discussed. Kocher, Tinker and others operate almost exclusively with local anthesis, and attribute their low mortality largely to its use. Mayo, Ochsner and others use a general anesthetic and get just as good results.

The one and only special danger in the surgical treatment of exophthalmic goitre is acute hyperthyroidism. When this condition develops the symptoms come on shortly after the patient is removed from the table, and consists in rapid pulse, high fever, great restlessness, and often wild delirium. Acute hyperthy-

roidism after an operation was formerly thought to be due to squeezing the gland and the absorption of its juices by the raw surface of the wound. This theory has been discredited on the ground that the thyroid in exophthalmic goitre has been repeatedly and thoroughly massaged by osteopaths without producing marked increase in the symptoms. Kocher, as a routine measure crushes a zone of the gland with a heavy forcep prior to its ligation and division, and no increase of hyperthyroidism has been noted. A number of surgeons who at one time cauterized the wound or painted it with Harrington's solution, to prevent absorption, have now abandoned the practice because it did no good.

Crile believes that acute hyperthyroidism after an operation is due to excessive secretion of the gland caused by psychic and traumatic stimuli. The psychic factor is excitement and fear. This may be independent of mechanical injury to the thyroid as shown by the fact that the symptoms often develop in susceptible patients after operations on other parts of the body. The method used by Crile to eliminate this factor is to inspire the patient with confidence and to keep him in ignorance of the time of the operation.

The traumatic factor consists in the impulses that pass from the field of operation to the central nervous system. Crile claims that a general anesthetic does not prevent injurious impulses reaching the brain causing exhaustion and shock. The use of a local anesthesia, however, temporarily disconnects the part being operated on from the brain. He, therefore, cocainizes the field of operation as thoroughly as if no general anesthetic were employed. With these two precautions he states ligation or excision may be done in desperate cases without fear of acute hyperthyroidism. The method is very valuable in certain cases but it is too elaborate and time-consuming to be adopted as a routine practice by many surgeons in all cases.

When a patient with exophthalmic goitre comes to a surgeon the case ought to be kept under observation and carefully studied for some days before deciding on the character of the operation best suited to the individual, and the safest time to perform it. Tinker impresses the fact that an examination of a patient who has been kept at rest for some days may give an erroneous impression of the safety of the opera-

tion. On the other hand, a patient coming from a distance, fatigued and frightened, may give the impression of a worse operative risk than is really the case.

Mayo states that the operation for exophthalmic goitre is not one of emergency, nor is it to be called life-saving in extreme cases, and it should not be undertaken except at a proper time. He calls attention to the exacerbations and remissions in the intensity of the symptoms, which he attributes to the accumulation and discharge of toxic substances in the gland. He believes that if the patient is carefully watched these periods can be predicted and the most favorable time for the operation is not when the patient's symptoms are at the best, but shortly after the gland has dumped its load and before it again becomes laden with toxic material.

Some cases can safely be operated on after one or two days' study, others require weeks of rest and medical treatment preliminary to the operation. Some cases require ligation of one or more arteries before it is safe to excise a portion of the gland, others should have one lobe and the isthmus removed without preliminary ligation. Tinker describes a desperate case which was saved by a graduated operation divided into five separate stages at intervals varying from a few days to several weeks.

Surgery of the thyroid is still in its developmental stage. In reading the literature one is impressed by the fact that each author at one time attributed his good results to some special feature of his operation which he has since found unnecessary or injurious and has abandoned. Fads are fast disappearing, and the work is rapidly approaching the basic principles underlying established surgery.

In the hands of men like Mayo, Kocher, Ochsner, Crile, Tinker and others, the mortality of operations for hyperthyroidism is now from two to five per cent., and eighty-five per cent. of those who recover may be said to be symptomatic cures. It is neither honest nor expedient, however, to make light of the operation or to belittle its difficulties and dangers. The figures quoted are from the statistics of master surgeons, and by no means represent the results of the average operator.

After a successful operation for hyperthyroidism the improvement in the patient is immediate and marked. In fact no operation in

surgery produces such quick and brilliant results. Tremor disappears, the pulse falls to normal, the eyes become less wild, and restlessness and irritability are replaced by quiet and composure. The wound, as a rule, heals rapidly and the patient is able to leave the hospital in from ten to fourteen days.

Because the patient is well from the operation, and because the acute symptoms are relieved, is not ground for immediate return to the ordinary activities of life. Crile very properly states that it requires approximately the same time to recover from exophthalmic goitre as from a nervous breakdown from other causes. A successful operation should be followed by an adequate rest cure.

NEW METHODS OF DETERMINING THE UREA IN URINE.

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Two new methods for the determination of urea in urine, introduced within the past year, bid fair to supplant those now in general use. For the past ten years, the hypobromite method has been the main reliance for clinical purposes, while the Folin method has been generally used for accurate work. This latter consists in the separation of the nitrogen of the urea by acid hydrolysis at a temperature of 160° C. Hydrochloric acid was the hydrolyzing reagent and the requisite temperature was obtained by conducting the hydrolysis in a strong solution of magnesium chlorid kept just at the boiling point. While the method is very accurate, it requires the attention of the analyst for two hours or more and also suffers from the disadvantage of not being applicable to diabetic urine. The time consumed in hydrolysis depends on the amount of urine used and one hour and a half was necessary for this purpose. The distillation of the ammonia into N/10 acid and the subsequent titration consumed half an hour more. In diabetic urine there are formed between the urea and sugar certain compounds, ureïds, from which the hydrolyzing method used does not quantitatively separate the nitrogen as ammonia.

The improvement of this method comes from Folin himself (*Jour. Biol. Chem.*, 1912, XI, p. 513; *ib.*: p. 520). It employs the same principle of acid hydrolysis at a temperature of 155° to

160° C., but uses potassium acetate to secure the desired temperature and acetic acid as the hydrolyzing reagent. Instead of 3 cc. of undiluted urine, as in the old method, 1 cc. of urine previously diluted from 5 to 20 times according to the specific gravity, is employed. This great reduction in the quantity of urea to be hydrolyzed reduces the time of hydrolysis to ten or twelve minutes, and the operation can be conducted in a large test-tube with a simple condenser. Potassium hydrate or carbonate is then added to render the solution alkaline and liberate the ammonia from the ammonium acetate. This ammonia is then driven by means of a strong air current into a measured quantity of N/100 hydrochloric acid, where it may be determined directly as ammonia by Nesslerization, comparing the depth of color obtained with that given by a standard solution of ammonium sulphate. For this purpose a high grade colorimeter is necessary.

The use of the colorimeter requires more skill and also more expensive apparatus than titration and was introduced only because it was found that for some reason titration gave too low values. The cause of this has been shown by J. C. Bock (*Jour. Biol. Chem.*, 1912, XIV, p. 295) to lie in the fact that, although the alkali added to the hydrolyzed mixture neutralizes all the acetic acid in the solution, it does not neutralize that in the form of vapor in the test-tube nor all of that which adheres in liquid form to the sides of the test-tube above the solution. This free acetic acid is driven over with the air current into the flask of N/100 acid and so gives too low values for the ammonia. The difficulty can be overcome entirely by driving the air current from the hydrolyzed mixture through a second test-tube containing strong potassium hydrate solution before it passes into the N/100 acid. When this is done Bock shows that the simpler and inexpensive method of titration gives perfectly accurate values for the ammonia.

When the urea is to be determined in diabetic urine, the procedure is essentially the same, except that the urine is diluted from 20 to 100 times. At this dilution the stable ureids are not formed.

This method not only possesses the advantages of reducing to half an hour the total time of analysis, of employing simpler and inex-

pensive apparatus, of requiring less close attention while in progress, and of being applicable to diabetic urine, but also the even greater advantage of being applicable to the easy but accurate determination of urea when it is present in very small traces, as in the blood and tissues. Folin has already used it in his very important work upon the fate of urea absorbed from various portions of the alimentary canal.

Of course a simultaneous determination of the urinary ammonia must be made both in the older and the newer methods, and this subtracted from the ammonia driven off in the air current from the test-tube in which hydrolysis of the urea has been conducted.

E. K. Marshall (*Jour. Biol. Chem.*, 1913, XIV, p. 283) contributes a clinical method which is far more simple and accurate in execution than the hypobromite method. The soy (or soja) bean (*glycine hispida*) contains an enzyme capable of quantitatively transforming urea into ammonium carbonate. The ground beans are extracted with acidified water and the extract filtered. This extract can be kept under proper precautions for a considerable length of time. The urine is then treated with this extract and after the conversion of the urea into ammonium carbonate is complete, the alkalinity of the solution is determined by titration with standard acid, using an indicator which is not appreciably sensitive to carbonic acid. The details of the preparation of the enzyme solution and of the execution of the method may be given in the author's own words (pp. 285-286):

"Preparation of the enzyme solution. The soy beans are ground to a fine powder which can be preserved in well-stoppered dry bottles for months, without appreciable loss of activity. 25 grams of this powder are mixed with 250 cc. of distilled water, and allowed to stand with occasional agitation for about an hour. Twenty-five cc. of N/10 hydrochloric acid are now added; and the mixture allowed to remain a few minutes longer (best in a water bath at about 35° C.), when a large proportion of the protein of the bean extract is precipitated. The mixture is filtered; the filtrate treated with a few drops of toluene and preserved for use in a stoppered vessel. On standing the originally clear fluid becomes opalescent, and finally a precipitate is formed; but the solution remains sufficiently

active for use in the method for at least five days after its preparation when kept at the room temperature. This solution is alkaline to methyl orange, and 2 cc. generally require from 0.28 to 0.34 cc. of N/10 hydrochloric acid for neutralization. This factor should be determined once for 2 cc. of each preparation and can then be employed as a correction as long as the solution is used. The alkalinity is apparently constant from day to day. If for any reason the extract should not be distinctly alkaline to methyl orange, less acid should be used in its preparation, as an extract which reacts acid to methyl orange is scarcely active.

"Execution of the method. Two 5 cc. portions of urine are measured into flasks of 200-300 cc. capacity and diluted with distilled water to about 100-125 cc. 2cc. of enzyme solution are added to one flask, a few drops of toluene to each and the solutions allowed to remain, well stoppered, at room temperature over night. The fluid in each flask is titrated to a distinct pink color with N/10 hydrochloric acid, using methyl orange as an indicator. The amount of hydrochloric acid required for the contents of the flask containing the urine and enzyme solution less the amount used for the 5 cc. of urine alone and that previously determined for 2 cc. of enzyme solution corresponds to the urea originally present in the sample of urine. Since 1 cc. of N/10 hydrochloric acid is equivalent to 3 mgm. of urea, the number of cubic centimeters required multiplied by 0.6 gives the value of urea expressed in grams per liter of urine."

For further details the reader may consult the original paper. The time of the enzyme action may be reduced to three hours, by conducting this part of the determination at 35° C. By the use of this method the urea may be determined with an error not exceeding 2 per cent, and this of course is amply accurate for clinical purposes.

IMPLIED OR DISCRETIONARY AUTHORITY OF SURGEONS.*

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From the time of the earliest reported cases, suits have been filed against physicians and sur-

geons for damages alleged to have been sustained by reason of surgical operations. A very considerable number of these cases have been brought on allegations of malpractice, but as professional knowledge has developed, as the standards for admission to practice have been raised, and more power to control practitioners has been given to public health authorities, there has been a proportionate decrease in the number of suits based on alleged malpractice. The decreasing number of such cases serves to bring more clearly into view those other cases in which damages are asked by reason of alleged unauthorized operations.

It is the purpose of this paper to recall briefly the general requirements of the surgeon, the degree of skill which he must possess and employ, and then consider in greater detail a few of the decisions of the courts in cases brought against surgeons and in which the defence has been implied or discretionary authority.

The general rule as laid down in the Encyclopedia of Law and Procedure (30 Cyc. 1570) is that "A physician or surgeon undertaking the treatment of a patient is not required to exercise the highest degree of skill possible. He is only required to possess and exercise the degree of skill and learning ordinarily possessed and exercised by the members of his profession in good standing, practicing in similar localities, and it is his duty to use reasonable care and diligence in the exercise of his skill and the application of his learning and to act according to his best judgment." The degree of skill and learning thus required is further to be determined with reference to the current state of medical science. But while the rule just quoted has been followed by many courts, it does not convey the full idea as to the requirements of one who practices solely as a surgeon. In the urban communities, the general surgeon is rapidly disappearing and the place which he once occupied is being filled by surgeons who seek to confine their professional endeavors to definite and particular lines. And so we have the abdominal surgeon, the orthopedic surgeon, the aural surgeon, the brain surgeon, the genitourinary surgeon, the ophthalmologist, the gynecologist, and a number of others. The usual city surgeon, who limits his work to a definite class of cases, occupies, therefore, in the view of the law, no less than in that of his own pro-

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fession, the place of an expert. He must then accept with the dignity—and perchance the increased emoluments—of this distinctive status, the added responsibilities of the position. When the orthopedic surgeon, for example, is called to treat a broken foot, he is bound to bring to the discharge of his duty, a special skill and learning, beyond that of the general physician or surgeon, and of a degree equal to that generally possessed by specialists of his own particular calling. With this introduction for the purpose of directing our attention to the general legal status of the surgeon, let us proceed with a discussion as to the peculiar position of additional responsibility which he occupies when he undertakes to exercise discretionary authority. Authority, of any kind, carries with it commensurate responsibility. The authority may be voluntarily accepted or it may be assumed by virtue of necessity, but in either case the person exercising it is charged with a positive responsibility.

The very terms “implied authority” and “discretionary authority” suggest to our minds a certain vagueness, and we can only look for their interpretation to the decisions which the courts have made when attempting to define them.

At the outset it is important to note that authority to operate must never be assumed by implied consent if it is possible to obtain definite and specific consent. The patient whose condition is such that he is fully able to decide whether or not he wishes an operation is entitled to the final word, and whether or not the operation is to be performed rests solely with him. As is stated in Kinkead on Torts (Vol. 1, p. 375), “The patient must be the final arbiter as to whether he shall take his chances with the operation or take his chances of living without it. Such is the natural right of the individual, which the law recognizes as a legal right.”

Of the whole number—and this total is not inconsiderable—of suits filed in recent years against those who practice surgery, and examined in connection with the preparation of this paper, the only ones which have been based upon operations to which the patient admitted having given express consent are ones in which the operators have been accused of malpractice. And while the chance of having such a suit

brought is ever-present, this is practically the only ground upon which it can be founded if the patient admits having given consent. It is not our purpose at this time to deal with cases in which malpractice is charged.

Now, it not infrequently happens that a patient in full possession of his mental faculties is quite aware that a specific operation is about to be performed by a surgeon employed for the purpose, and while he is not expressly asked whether he consents to the operation, he offers no objection. Such instances come within the classification of implied consent and it has been held that the consent of the patient is presumed. Then there are the cases, with which every surgeon is familiar, in which by reason of accident the patient is rendered incapable of giving or withholding consent, under which conditions the surgeon is justified in taking proper steps to save life or limb.

Suits may be filed, and occasionally are filed, based on operations performed under either of the conditions just mentioned. Under such circumstances, however, when the truth is brought to light the surgeon has little to fear, and a directed verdict in his favor may reasonably be expected.

The class of cases presenting the most doubt, and being frequently fraught with grave consequence to the surgeon, are those in which, being engaged to perform a specific operation, he has in lieu thereof or in addition thereto, performed another operation. In 1905 a decision was handed down by the Supreme Court of Minnesota in a case of this nature, the effect of the decision being to hold the surgeon strictly to account for the least departure from the letter of his instructions. In the light of a decision of the Supreme Court of New Jersey, rendered in the summer of 1912, the decision of the Minnesota Court is shown to be lacking in common sense and restricted by an undue adherence to unreasonable technicalities. An examination of these two cases will serve to show the distinct progress made by the courts in their handling of suits of this nature, and the present view, as announced by the New Jersey court, ought to afford considerable consolation to the surgeon in active practice.

The Minnesota case (*Mohr vs. Williams*, 95 Minn. 261) was an action for assault and battery in which the plaintiff alleged that an un-

authorized operation performed by the defendant had seriously impaired her hearing. From an examination of the record it appears that plaintiff consulted the defendant who was an aurist of a large practice in St. Paul as to a difficulty with her right ear, and the defendant, after examination, advised an operation, to which the plaintiff consented. While the patient was under the influence of anesthetics and unconscious therefrom, the defendant examined her left ear and found it in greater need of an operation than the right ear. He called this to the attention of plaintiff's family physician, who was present at plaintiff's request, and the family physician confirmed the diagnosis, whereupon defendant concluded to operate upon the left ear instead of upon the right ear, and came to the conclusion that the condition existing in the right ear was less serious than he had anticipated, and might be remedied by other treatment. It may be said in explanation that the proposed operation on the right ear was for the removal of a large polyp in the middle ear, and also removal of diseased ossicles, and that the examination of the left ear, made while the patient was under anesthetics, disclosed a small perforation high up in the drum membrane, hooded, and with granulated edges, and the bone of the inner wall was diseased and dead. Defendant performed the operation of ossiculectomy on the left ear, removing a portion of the drum membrane, and scraping away the diseased portion of the inner wall of the ear.

Commenting upon the operation in the light of the evidence adduced, the Supreme Court said in its later review of the case, that "the operation was in every way successful and skillfully performed," and was "of a generally beneficial nature." Notwithstanding the evidence which led the Supreme Court to comment in this favorable manner upon the operation and its result, the jury in the trial court, gave the plaintiff a verdict for \$14,322.50 on her suit for \$20,000. The defendant moved for judgment notwithstanding the verdict, and if this be denied, a new trial on the ground of excessive verdict. The court overruled the first motion, but granted the motion for new trial, whereupon plaintiff appealed from the order granting new trial, and the defendant appealed from the order denying his motion for judgment notwithstanding the verdict.

The Supreme Court of Minnesota apparently approached the consideration of this case in the light of ancient decisions, and although granting the correctness of the proposition that a surgeon who, while conducting an operation to which a patient consents, discovers conditions not anticipated and which if not removed might endanger life or health is justified, even without express consent, in operating to remove and overcome such conditions, differentiated the case under consideration from those coming under the rule just cited, and held that the diseased condition of the left ear was not such a condition as might reasonably be discovered while performing an authorized operation on the right ear, and that the discovery of the diseased condition of the left ear was the result of an independent examination. In striving to establish a legal ground for this strained construction, the court apparently overlooked the fact that in the last analysis what the patient wanted and what the surgeon was employed to bring about, was better hearing. Hearing is a bilateral sense, and if it is to be normal both ears must be in proper condition. If it is below normal and is to be improved and a surgeon is employed for this purpose, his endeavors must be directed toward either or both ears and cannot be crowned with the full share of success if restricted to but one ear. This decision was on par with one of an Iowa Court, in a malpractice suit, in which the court without elaborating the questions presented, ruled that the fact that plaintiff sustained an X-ray burn, was of itself evidence of improper treatment. (*Shockley v. Tucker*, 127 Iowa, 456.)

The Supreme Court sent the case (*Mohr v. Williams, supra*) back for another trial, and it came up the following year before another trial judge and another jury, and this time the plaintiff sought to strengthen her case by showing that Dr. Davis who had attended the operation and who was referred to in the first case as her family physician, was not in reality her family physician, but had treated her sister and was asked to be present simply to guard against the effects of the anesthetic. This time the jury gave plaintiff a verdict for \$3,500, and the trial judge granted defendant's motion for a judgment notwithstanding the verdict, it appearing to the court, as interpreted by the Supreme Court, that an emergency existed which called

for immediate treatment, and that the operation was justified on that ground, conceding no consent had been given either expressly or by implication. The Supreme Court, although from its utterances it seems to have entertained the same opinion as to the needs and necessities of the patient, reversed the decision of the lower court in granting the motion for judgment for defendant and the case was sent back to the court below for a third trial.

After these two trials, it seems that the defendant became tired of legal proceedings, for by stipulation of the parties, the last judgment for \$3,500 was reduced to \$2,242, and the records of the trial court show that judgment in this latter amount was entered as satisfied.

In striking contrast to the narrowness which is apparent in the decisions in the case just cited, is the opinion of the Supreme Court of New Jersey in the case of *Bennen vs. Parsonett* (83 Atl. 948). It was a charity case. While the law holds that a surgeon rendering gratuitous service is bound to use the same care, skill and diligence required in any case, it is of passing interest to note that even in charity cases, a surgeon is likely to be sued for results growing out of authorized operations or for alleged improper operations. In this latter case plaintiff applied to the defendant to operate upon a rupture in his left groin. The rupture had been unsuccessfully operated upon two years previously by another surgeon. Two assisting surgeons placed plaintiff under an anesthetic, and when the defendant came into the operating room, they called his attention to a rupture they had just discovered in the right groin which, after examination and employment of diagnostic tests, convinced all three surgeons as being a serious menace and likely to cause patient's death should strangulation occur, a danger not to be apprehended from the rupture once operated upon. Defendant thereupon operated upon the more serious rupture, and intended operating on the other, but the condition of the patient under the anesthetic prevented. The patient on being informed that the operation would be completed on a following day, apparently acquiesced, but later declined to go on with it, and brought suit against the surgeon. A number of medical men testified for the defense, among them being at least one surgeon who was recognized and commented upon by the court

as a man of wide reputation and possessing a high order of professional skill. From the testimony of these witnesses, it was clear that the operation had been skilfully performed and was of positive value to the patient. Notwithstanding this testimony, the trial court charged the jury that the defendant had performed an operation without plaintiff's consent, for which he was properly liable in such amount as the jury might fix, and the jury gave the plaintiff a verdict for \$1,000. The case went on appeal to the Supreme Court of New Jersey, and that tribunal in reversing the decision and speaking through Justice Garrison, handed down a decision which is at once of striking literary merit and pregnant with what may be called legal common sense. The decision starts with the emphatic declaration: "This verdict cannot be permitted to stand." Then after reviewing the uncontradicted medical testimony in the case, the Supreme Court says: "A verdict rendered in the face of this testimony can rest only upon the assumption of superior knowledge by the jury. The duty of the jury was to render a verdict upon the evidence, and that it did not do." The Supreme Court referred to the common law rule as laid down by *Kinhead*, to which reference has heretofore been made, and which holds that the consent of an individual must be either expressly or impliedly given before a surgeon may have the right to operate, and rejected the rule as inapplicable and unsuited to modern conditions, the court adding that the introduction of anesthesia into the practice of surgery has modified the application of the common law rule in certain fundamental respects, of which the law must take notice. Proceeding from this premise, the court laid down the rule that a person who has selected no other person to represent him during a period of unconsciousness that constitutes a part of an operation, is presumed to have selected the operating surgeon as his representative, and that the law will by implication cast upon such surgeon the responsibility of so acting for the patient that the latter shall receive the full benefit of the professional judgment and skill to which he is entitled.

A relation of agency is thus created, the law in the interest of the patient raising up the surgeon to act as his agent. This decision is of far reaching importance, and if followed by other

tribunals will do much toward bringing to an end the filing of suits which may seem to have a basis in law, but are absolutely lacking of basis in either ethics or morality. To be sure, the duty imposed upon the surgeon by such an agency, is one of grave responsibility. He must not, as the New Jersey case points out, substitute his will for that of the patient and he must not transcend this implied authority. But within these proper limitations the work done by the surgeon in the interest of the patient is held to be "fairly within the implied duty and authority of the surgeon."

It may be said by many and with reason, that the note of startling importance sounded in the New Jersey decision, comes at that point when the court exclaims that this is a case to be decided not by precedent, but by reason. Attacks upon the practice of the judiciary to follow hide bound precedents are very frequent. Such attacks indicate, at least, that in the view of the layman, more decisions should be rendered in the light of reason than by following precedent. Not to the layman alone is confined this criticism, and we find an eminent member of the Philadelphia bar, in addressing the Medical Society of the State of Pennsylvania, using this language:

"The time has passed for us to make a fetish of the common law. We should approve what is good and abandon what is bad, or in modifying our procedure blend with the common law something of the civil law, if common sense requires it."*

It has become the fashion in some quarters to compare the progress of the law with the progress of medicine. Time and again attention is called to the achievements of medical men and of scientific men which have wrought great changes in the practice of medicine and surgery, and invariably in these comparisons when such progress is noted, attention is also directed to the fact that in the administration of our laws, the lawyers and the courts hark back to alleged precedents as reported in cases decided many, many years ago. For the vindication of the law, however, and as an earnest of what may be hoped for in days to come, there comes forward

from time to time, in both the trial court and the appellate tribunal, a judge who possesses a knowledge of the law, a wholesome idea of what the law seeks to do, and some notion of the application of reason and common sense principles in administering the law. In this jurisdiction we have been favored by having judges whose independence of thought and action have been conspicuous on many occasions. Cases similar to those which have herein been cited at length, have been rare in this community, but it has not been many years since one of the trial courts of this District sustained the defense of a well known radiographer who had been sued for damages, and this decision was affirmed by the Court of Appeals. Such decisions unquestionably inspire confidence in the majesty of the law and the administration of justice, but in the sum total of such decisions, that of Justice Garrison of the Supreme Court of New Jersey, and from which I have quoted *in extenso*, stands as one of the conspicuous instances which lead us to hope that the time is not far distant when the surgeon who undertakes to give his unconscious patient the benefit of Twentieth Century discoveries and approved methods, will not be embarrassed and circumscribed by a fear of running afoul of legal precedents of the antediluvian age.

Century Building.

PANCREATIC CYSTS.*

By R. C. BRYAN, M. D., Richmond, Va.
Surgeon to Grace Hospital.

In 1882, Gussenbauer first called attention to the correct pathology, diagnosis and treatment of pancreatic cysts. Until that time the understanding of this condition was chaotic.

In the records of 6,000 post-mortem examinations at Guy's Hospital (London), Malcolm found mention of only four pancreatic cysts. The condition then is not one commonly encountered.

A *true* cyst of the pancreas is a sacculated accumulation of fluid originating in the pancreas and retaining an anatomical connection with the organ.

*Francis Fisher Kane, in a paper read before the Medical Society of the State of Pennsylvania, at Scranton, September 24, 1912, and reprinted in the *Penn. Medical Journal*, November, 1912.

*Read before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, October 22-25, 1912.

Pseudo-cysts are accumulations of fluid in the lesser peritoneal cavity about the pancreas. True cysts may be:

1. Retention—
 - a. Of the pancreatic duct.
 - b. Subsequent to an interstitial pancreatitis.
2. Proliferation or cyst adenoma.
3. Hemorrhage or apoplectic.
4. Hydatid.
5. Congenital.
6. Cysts arising in carcinomatous degeneration.

Auto-digestion by the pancreatic juices goes on in all types of cysts. Regardless of the pathological cause, cysts are produced by overproduction of contents with insufficient escape of same.

Etiology.—Thirty per cent are traumatic. Lloyd believes that the so-called pancreatic cysts of traumatic origin are collections of fluid in the omental bursa, the result of localized inflammation in this portion of the peritoneum.

Age.—Pancreatic cysts have been observed in patients from 13 months old to 76 years, but are more usually seen in the third and fourth decades.

Location.—No part of the gland is exempt. Seventy-one per cent occur in the tail; here the ducts are finer and can be more easily occluded.

Sex.—The traumatic occur more frequently in the male. When this factor is disregarded, the frequency is about the same in both sexes.

Pathology.—Virchow considers the origin of cysts in the pancreas as analogous to "ranula buccalis," and calls them "ranula pancreatica." The ligation of a healthy duct does not disprove this, nor can an obstruction be demonstrated in all cases of retention cysts.

Some of the causes of obstruction may be chronic indurative pancreatitis, tumors of the pancreas and gall bladder, pressure from without, aneurism, impacted gall stones, calculus in the duct of Wirsung or at the papilla of Vater. The epithelial lining of cysts is more frequently a single layer of columnar cells; occasionally it is many layers of thickness, the walls being made up of dense fibrous tissue in which are found heavy vascular streams.

Number.—Cysts may be single, multiple, unilocular, or multilocular. The small multi-

ple cysts are called by Klebs "acne pancreatica."

Size.—Varies from a small vesicle to an immense sac containing four gallons.

Growth.—These cysts usually grow slowly, particularly when consequent to pancreatitis interstitialis. The traumatic type is more rapid; those that grow very rapidly are apt to be false cysts.

Contents.—The contents of pancreatic cysts are usually fluid, chocolate, brownish red or dark green, turbid, gelatinous, purulent, sometimes colorless, alkaline in reaction, and containing albumen, fat globules, crystals of cholesterolin, white and red blood corpuscles and inorganic salts. The diastatic ferment is most usually found, the tryptic is sometimes present, and the fluid may possess emulsifying properties. Pure pancreatic secretion may be innocent, but the fluid from the cyst quickly excites irritation, which fact is responsible for the large number of tenacious adhesions usually found about the pancreatic sac.

Diagnosis.—Von Bergman gives three classifications for the location of pancreatic cysts:

1. That type which, developing in the lesser peritoneal cavity between the stomach and transverse colon, presses forward the gastrocolic ligament.

2. Occasionally the cyst lies above the stomach, pushing the gastro-hepatic ligament in front of it and crowding forward between the liver and the stomach. This is the rarest form of projection.

3. The cyst may develop between the layers of the meso-colon, in which case the transverse colon may lie in front of the tumor or somewhere above it.

In proliferative cysts there is not always a sharp line of distinction between them and malignant growths. Opie seems to regard this type as beginning malignancy. Hartman describes a cystic epithelioma attached to the tail of the pancreas accompanied by extensive metastasis to the liver.

The case which the writer wishes to report is that of Mr. L., a farmer, who was referred by Dr. R. P. Morehead, of Weldon, N. C. The patient, in hoeing some two years previously, was struck a light blow in the pit of the stomach with the butt end of the handle. He paid but little attention to it at the time, but several months later noticed a distention or swelling in

the left epigastrium. This tumor continued to grow in size, giving but little pain and inconvenience, and was tolerated until its dimensions were so large that his work could be no longer carried on. At this time, about eight months after the injury, he consulted Dr. Morehead, who tapped the tumor in the left anterior axillary line. A large quantity of bloody fluid was evacuated, probably five quarts or over. The sac continued to drain for four or five months, finally healing up. It was now that the tumor began to grow rapidly in size, so that six months later he was unable to do any work, and was brought to Grace Hospital.

On August 14th, 1912, the patient on examination showed a man 56 years old, rather thin, with considerable embarrassment in respiration and movements by virtue of a large tumor occupying the left hypochondrium, flank, and projecting beyond the middle line four fingers breadth to the right of the navel. The outline of the tumor was well defined, fluctuant, seemingly varying in consistency, and showed in the anterior axillary line the site of the original puncture for evacuation. There was a slight œdema of the legs, the blood count and urinalysis were negative, and no examination was made of the stool or stomach contents.

Longitudinal incision was made in the left rectus down to the sac, which was found to be densely adherent at the former site of puncture. This was separated with much difficulty and drawn into the wound. One of the thin points in its envelope burst and a sero-bloody, tarry fluid, amounting to something over three gallons, was evacuated. Diverticula were now found running up under the pancreas and the diaphragm, the one to the left being lost about the splenic area, while a large diverticulum admitting three fingers ran upward and outward under the right lobe of the liver. Dense adhesions about this prevented its eradication. The sac was ligated as close as possible to the pancreas, the diverticula swabbed out with iodine, tubes inserted in each of the three diverticula and the patient returned to bed. Through these tubes each day for a week a pure solution of iodine was poured in, thus hoping to do away with the secreting surfaces of the diverticula. In 18 days these tubes were removed and on September 9th the patient left for home. There was still a small sinus which

drained serous fluid, though the patient was much improved in weight and appearance. A report from his physician on October 1st informs us that the sinus has healed; there seemed to be at that writing no recurrence of the fluid; the man is able to attend to his work, and apparently enjoys better health than he has in several years.

This would seem to be the typical history of pancreatic cysts. Springing from the juncture of the tail with the body, it left the head and larger part of the secreting parenchyma to minister to the functions of the digestion, thus interfering but little with the nutrition of the patient. The diagnosis would seem to be justifiably confounded only with enormous hydro-nephrotic sacs or in instances of spleno-medullary leukaemia, in which the spleen has undergone a gelatinous degeneration. Urinalysis, blood count, Cammidge's test, examination of the stool and stomach contents and X-ray offer no peculiar assistance in the diagnosis of this condition. The location of the tumor, its rapid growth, its fluctuating character and discrete outline, its embarrassment only from weight and mechanical interference, and the clinical history would seem to be sufficient grounds for making an almost positive diagnosis. This may be absolutely concluded by tapping and subjecting the contents of the sac to examination before operation is contemplated. The rarity of the condition, the enormous size of the sac, its branching diverticula and inability to be removed, the free use of iodine, and the apparent perfect recovery of the patient make the case, in the opinion of the writer, of sufficient interest to be presented to this body.

MALARIA AND SOME OF ITS COMPLICATIONS.*

By WM. F. GRIGG, M. D., Oriental, N. C.

The word malaria is derived from two Italian words, "mal" and "aria," which mean bad air. The occurrence of the disease is not dependent upon, but is always associated with three factors: a tropical or semi-tropical temperature; abundant moisture, especially stagnant collections of water or swamps: both of which insure the third factor, viz., good vegetable growth and decay. These three associates,

*Read before the Seaboard Medical Association, at New Bern, N. C., December 4, 1912.

temperature, moisture, and decaying vegetable matter, produce fogs and disagreeable odors, or, in other words, bad air; hence, the disease associated with such conditions was very naturally called bad air or malaria.

History shows that malaria in all its forms existed during the time of Hippocrates, who lived about three hundred years before Christ. He divided malaria into two forms; every day chills, and the every other days chills. It was not until about one hundred years after Christ that the types popularly known as hemorrhagic fever and congestive chills were added to the forms reported by Hippocrates, and it was not until 1640 that quinine was known as a curative agent for the disease. Countess Cinchon visited South America and saw the Indians drinking water from ponds where the cinchona trees had fallen in the water. This bitter water that absorbed the quinine from the trees would cure fever, and it was this that suggested the idea of quinine for malaria. In 1692, Morton called attention to the association of malaria and miasmatic conditions and in this way he is probably responsible for the name malaria. It is a prevalent idea among the illiterate to this day that fogs and damp air will cause chills and fever.

The next decided advance in our knowledge was contributed by a French army surgeon, Laveran, who in 1880 discovered the cause of the disease in the form of microscopic germs in the blood of malaria patients. The next question naturally was how these small germs found their way into the blood, how they entered the body,—did they enter with the food or drink, or did they enter the lungs with the inspired air, as would naturally be supposed from the miasmatic theory? This question was fully and conclusively answered by Ronald Ross, an English scientist, who, in 1897, showed that malaria in birds was transmitted from one bird to another by mosquitoes. In 1899, several Italian investigators proved that the disease in man was conveyed in the same way.

Importance—The British encyclopedia states that malaria has been estimated to produce one-half of the entire mortality of the human race, and in-as-much as it is the most frequent cause of sickness and death in these parts of the globe that are most populated, the estimate may be taken as practically correct. The deaths from malaria in the United States amount to approxi-

mately 15,000 a year. In addition to this number, according to a careful estimate there are between one million five hundred thousand and three million who suffer from its effects.

A further striking example of the importance of this disease is shown in the failure of the French and the explanation of the success of the Americans in the Panama undertaking. It is estimated that the French lost fifty thousand men from mosquito borne diseases—malaria and yellow fever. Their hospitals were overcrowded most of the time. The mortality was high, ten per cent dying annually. This death-rate prevailed in 1887, and when the United States began the Canal in 1905 the death-rate was 65 for each one thousand of the population. In five years of sanitary supervision under Col. Gorgas, this has been reduced to a little higher than that in the United States. Thus it has been demonstrated to the world that it is not climatic conditions, but insect borne disease that the white race has to fear in the tropics. Finally, to bring the malaria problem home to us, malaria is two-thirds a Southern disease, and the increase in tax valuation of land in Eastern North Carolina that would result from the eradication of the disease would many times over reimburse the State for the necessary funds with which to exterminate it.

Cause.—So long and so extensively has the vague miasmatic theory as to the cause of malaria existed, that it deserves the first consideration in any discussion of the subject. The cardinal fact that necessitates the divorcement of this pseudo-scientific explanation from any mind open to evidence is this: A wire or cotton net that keeps out insects as large as mosquitoes will prevent the development of malaria. As proof of this, people who have never had the disease and have never lived where malaria existed have been taken to the most malarious countries and separated into two groups, one being kept in a screened house, while the other has lived in an unscreened house. The first group, although breathing the same air, eating the same food, and drinking the same water as the second group, remained perfectly well, while the group living in the unscreened house all had malaria. The above experiment not only discarded the miasmatic theory of malaria, but indicated that the mosquito was responsible for the disease. Now it is known that when a mosquito bites any one,

it is necessary for it to first inject its own saliva into the puncture to dissolve the blood cells, so that the blood may be drawn through the small caliber of the proboscis.

When a mosquito of the genus *Anopheles* bites an individual whose blood contains sex-ripe forms of the malarial parasite, flagellation and fecundation of the female element occur within the stomach of the insect. The fecundated element then penetrates the walls of the mosquito's stomach and begins a definite cycle of development in the muscular coat. Two days after biting there begins to appear small round refractive granular bodies in the stomach walls of the mosquito, which contain pigment granules clearly identical with those previously contained in the malarial parasite. These develop until at the end of seven days they have reached the diameter of from sixty to seventy microns; at this period they may be observed to show a delicate radial striation due to the presence of great numbers of small sporoblasts. The mother oöcyst then bursts, setting free into the body cavity of the mosquito an enormous number of delicate spindle-shaped sporozoids; these accumulate in the cells of the veno-salivary glands of the mosquito and, escaping into the ducts, are inoculated into the subsequent bites of the insect. These little spindle-shaped sporozoids develop, after inoculation into the warm-blooded host, into fresh young parasites. The sporozoid, which has developed in the oöcyst in the stomach walls of the mosquito, is then the equivalent of the spore resulting from the asexual segmentation of the full grown parasite in the circulation. Either one on entering a red blood corpuscle may give rise to asexual or sexual cycle, but, as a rule, the first several generations of parasites in the human body pursue the asexual cycle, the sexual forms developing later. These sexual forms, sterile while in the human host, serve as the means of preserving the life of the parasite and spreading infection when the individual is subjected to the bite of the *Anopheles*.

Of the two hundred varieties of mosquitoes found in the United States and European countries, there is only one variety which is capable of transmitting malaria; this is confined entirely to the female mosquito and she will not convey the infection unless she has eight to twelve days previously bitten a patient who was suffering with malaria in some of its forms. The

male mosquito does not live on blood, as he has no proboscis and lives on fruit juices and such things as can be easily taken in his stomach.

In discussing the different types of malaria, only the three forms of pernicious malaria will be mentioned.

Pernicious Malarial Fever.—This fortunately is rare in temperate climates, and is always associated with the aestivo-autumnal parasite.

Diagnosis of *malarial remittent fever* may be definitely made by examination of the blood. The small actively motile hyaline forms of the aestivo-autumnal parasite are to be found, while if the case has lasted over a week the larger crescentic and ovoid bodies are often seen. In many cases we are at first unable to distinguish between typhoid and continued malarial fever without a blood examination; this, however, will enable us to discover those conditions which depend upon the malarial poison. In many cases of continued remittent fever, careful inquiry will show that at the beginning the patient had several intermittent paroxysms.

In the *comatose form* the patient is struck down with symptoms of the most intense cerebral disturbance.—either acute delirium or, more frequently, a rapidly developing coma. A chill may or may not precede the attack; the fever is usually high and the skin hot and dry. Unconsciousness may persist for from twelve to twenty-four hours and the patient gradually recover, or he may sink and die. After regaining consciousness, a second attack may come and prove fatal. In these instances, as has been stated, the special localization of the infection is in the brain, where actual thrombi of parasites with marked secondary changes in the surrounding tissues may be found.

In the *algid form* the attack sets in usually with gastric symptoms. There is vomiting, intense prostration, and feebleness out of all proportion to the local disturbance. The patient complains of feeling cold, although there may be no actual chill. The temperature may be normal or even subnormal; consciousness may be retained; the pulse is feeble and small, and the respirations are increased; there may be severe diarrhea, while the urine is often diminished or even suppressed. This condition may persist with slight exacerbations of fever for several days, and the patient may die in a condition of profound asthenia. In the case with vomiting and

diarrhea, it has been shown that the gastric and intestinal mucosa is often the seat of special invasion by the parasites, actual thrombosis of the small vessels with superficial ulcerations and necrosis occurring.

Hemorrhagic fever is a form of malaria which is the most dreaded among the diseases of Eastern North Carolina, and one which gives the patient anxiety and the physician great concern. The condition is also known in different localities as "black water fever," "hemoglobinuric fever," and "malarial hemoglobinuria." In temperate regions these forms are rare; in the tropics they are common. In the Southern States there are many districts in which there is endemic hemoglobinuria, believed to be of malarial origin, while in part of Africa there is the much disputed malady known as black water fever.

For two or three days the patient has a rise of temperature, and if the blood is examined, parasites are almost invariably present; if examined after the administration of quinine, they are usually absent from the blood. Simply because the malarial organism is absent from the blood after the administration of quinine does not necessarily prove that the patient is free from malaria, as the æstivo-autumnal forms may be found in the spleen and red bone marrow. They are especially found in these organs while quinine is being administered and during the day-time, seeming to offer a protection to the parasite which may be dormant in these organs for an indefinite period through repeated attacks of malaria without hemorrhage. In most instances where the disease has been carefully studied, the paroxysms have occurred with individuals who have been subjected to frequent attacks of malaria and have been reduced to a more or less cachectic condition. As a rule, however, active symptoms of the disease are not present at the time of the hemoglobinuric attack and it is often impossible to demonstrate parasites in the blood. In these cases quinine in large doses may aggravate the paroxysms,—it does not apparently bring on the attack, the immediate cause of which is still a matter of conjecture. It has been observed in some regions in which hemoglobinuria is prevalent. It is especially apt to occur after the true malaria season when the colder weather has begun to set in, proving conclusively that

the dormant theory of the æstivo-autumnal type is true.

The following is a report of two cases of hemorrhagic fever, one which ran a temperature and signs of acute malarial infection, and the other no temperature during the time of hemorrhage.

The case which ran no temperature was a woman about twenty years old, whom I was called to see September 7th. From a history of the case she had apparently been in good health up to two weeks of this time when she thought she had a slight chill, but as there were no more chills she paid little attention to her condition until three or four days before I saw her. She suffered with a sense of uneasiness, felt languid, with no energy and no appetite; the whites of her eyes were yellow, she had a severe headache every afternoon, with seemingly no temperature. When I saw her on the above date she had just had the first hemorrhage; she had no temperature, and the pulse was slightly accelerated, with slight nausea but no vomiting. By 9 P. M. of the same date the nausea had reached such a proportion that the patient vomited frequently and there was a slight improvement in color of hemorrhage.

On September 8th, the patient had no temperature, the pulse was slightly above normal, headache was not so severe, nausea was still present, but very little vomiting, some improvement in the color of the hemorrhage.

September 9th, patient had no temperature, and pulse was normal; hemorrhages had ceased, and urine was nearly at its normal color. From this period the patient made an uneventful recovery.

The second case was a boy 13 years old whom I was called to see October 1st. About two weeks before this time the patient began having every other day chills. His father gave him a purgative and some quinine and the chills stopped, but the boy had a fever in the evenings; he had a very sallow complexion, very little life and no appetite. On October 1st, at 10 A. M., he had a severe chill. I saw him at 3 o'clock that afternoon when his temperature was 104 degrees, and pulse 120 per minute and easily compressed. He had a severe hemorrhage about two hours before I arrived and one while I was at his home, of nearly a quart, which was of a dark coffee color. He had severe

nausea and vomiting with intense headache and pain in small part of back in the region of his kidneys.

On the morning of October 2nd his temperature was 101 degrees and pulse 120; again there was severe nausea and vomiting, with very little improvement in color of hemorrhage. A tendency toward suppression of the kidneys was also noted. The afternoon of the same day temperature was 100 degrees, pulse 120; the nausea and vomiting persisted, and hemorrhages were as they had been in the forenoon.

On October 3rd, the patient complained of being very weak and fainty; temperature was 99 $\frac{3}{5}$ degrees, and pulse 115; nausea and vomiting were severe, and patient was unable to retain anything on his stomach; the hemorrhages were much improved.

On October 4th, there was a decided improvement in patient; hemorrhages had cleared up, with a good flow of urine; temperature was normal, pulse 100 and of good volume; the vomiting had ceased and the patient had only slight nausea, while pain in the region of the kidneys had disappeared. The patient could retain some nourishment. From this period the patient began to improve rapidly and made a complete recovery.

The two cases above mentioned were selected from a series of 15 cases, without a fatal case.

You will note the treatment of these cases has been omitted as the patients are laws unto themselves, and no two cases can be treated alike successfully. No one should attempt the treatment until he has made a careful study of the disease.

TOXÆMIA-SEPTICÆMIA, PYÆMIA.

By A. J. BURKHOLDER, M. D., Staunton, Va.

Previous to the advent of bacteriology the theories advanced were largely of a speculative nature regarding the etiology of pathological conditions, and were based on macroscopical observations.

Since the introduction of experimental research, conducted upon a scientific basis, we are dealing no longer with theories, but established facts. Showing, first, microscopically, the cause, the pathology, and by isolating the germ, pure cultures can be obtained. The disease can be reproduced in susceptible animals, affording abundant opportunity for the study

of its pathology from inception to termination, or can be terminated at any stage of its progress.

Experimental research has done even more than this,—preventive and curative means of inestimable value have robbed deadly diseases of their danger, and death of its victim. Vaccine, antitoxin, bacterins, tuberculin, and serum therapy are rapidly gaining favor, and since all but a few biological products have passed the experimental stage, epidemics are not attended with former dangers, and are quickly under control of health officers.

In the study of this advanced branch of medicine many perplexing problems confront the research worker and the classification being a most difficult and complicated matter—great confusion exists in the minds of the practitioner; often his doubt diverts his attention from the true cause until serious complications threaten the life of the patient.

It is difficult to define, in all cases, the line of distinction between germs of the most dissimilar class, just as it is often impossible to draw a sharp line of demarcation, beyond any shadow of doubt, between sanity and insanity; there exists a borderland between the extremes, and the center cannot be determined.

Similar obstacles are encountered in bacteriology,—germs known to be purely saprophytic desert their natural tenor of life and form various transitions between their normal function and that of the parasitic class, yet the majority of the so-called pathogenic or disease-producing bacteria belong to the latter class. However, it is possible for strict saprophytes to cause disease, when other factors have brought about death of tissue from the chemical poisons or toxins liberated by disintegration of their own bodies; also other pathogenic effect may result from direct power exerted in subjects of impaired cellular resistance.

The term toxæmia, as generally used, includes all intoxications due to absorption of bacterial poisons, yet some writers limit its use to constitutional effect resulting direct from bacterial infection of the tissues, which may be local or general. The organisms multiply at the point entrance is effected, causing local tissue change and more or less local symptoms, or general symptoms resulting purely from a local

origin; but by absorption of toxins a more general toxæmia results.

If the generally accepted definition of infection is strictly observed, the pathogenic micro-organism must enter, grow, multiply and elaborate toxins within the body; however, we find bacterial intoxication without invasion of the tissues, and in as much as the symptoms produced are direct from the effect of the toxins and not from the immediate presence of the germ, it matters but little whether the bug is within or without, his sting is just as deep. As an example of this form of poisoning, we have severe toxæmia resulting from absorption of performed toxins from gastro-intestinal tract, when no evidence of infection exists, even if germs were present in the canal. Toxæmia is far from uncommon, and is usually manifested in the course of infectious diseases, and it is this secondary effect, we refer to, giving rise to constitutional symptoms after a definite period of incubation.

If, however, the term toxæmia be used in its broadest sense, the toxæmia of pregnancy, cachexias of malignant diseases, accumulation of toxic substances due to faulty elimination, and all forms due to abnormal metabolism should be included.

The term septicæmia has been confined to those affections in which general infection has taken place, that is, the germ is within the body, and toxins are elaborated in various parts of the body remote from the point of inoculation, with or without marked local tissue change. Yet, upon the other hand, fatal sepsis does occur when the germ has neither migrated from site of infection or produced local tissue change.

The term pyæmia is restricted to a far more complicated condition, characterized by definite lesions, due to multiple secondary foci of suppuration, caused by multiplication and migration of the offending micro-organism to various parts of the body. It is, therefore, evident that pyæmia is dependent upon both toxæmia and septicæmia, and always implies the presence of pathogenic bacteria plus the pathological conditions found in both. A distinction may be made, however, between pathogenic and toxicogenic bacteria. Quoting from Osler's Modern Medicine, Vaughan and Novy, Hiss and Zinsser, the specific distinction is pointed out as

follows: "A pathogenic bacterium is one which induces a specific disease, recognized by more or less well-marked and characteristic symptoms during life, by the more or less definite lesions found after death, or by both. Pathogenic bacteria are always capable of growth in the animal body in which they multiply and elaborate their specific toxins. All pathogenic germs are toxicogenic, but it does not follow that all toxicogenic bacteria are pathogenic.

"Different races of pyogenic streptococci show considerable variations in virulence, and there are few organisms, pathogenic both for man and animals, which show such peculiarities in virulence. The character or severity of the lesions in man gives little evidence as to the virulence of the organism for animals. Such differences are, to a certain extent, dependent upon inherent individual characteristics, but are rather more likely to be the consequence of previous environment or habitat.

"Prolonged cultivation upon artificial media usually results in the reduction of virulency, while an originally low or reduced virulence may often be much enhanced by repeated passage of the streptococci through animals."

These principles are applicable to many organisms, and many other circumstances influence their virulence. The degree of virulence often depends upon primary injury of tissue invaded, upon susceptibility of animal or man to that special organism, upon natural or acquired resistance in selected individuals, and upon repeated passage through highly susceptible subjects. As an example of this fact, take diphtheria for instance. At the beginning of an epidemic, the germ having been captive in some obscure nook, subjected to unfavorable conditions for an indefinite time, when released upon even the most favorable natural media, exerts but slight virulence; but an infection transmitted from such mild attack shows increased virulence with typical lesions. This peculiarity has been observed in other diseases due to pathogenic micro-organisms, and appears to be the rule rather than the exception. The germ of diphtheria may live indefinitely in unaffected throats of the human, and doubtless thereby, in the majority of instances, the virulence is reduced, or the germ may be active in the throats of animals less susceptible, with a correspond-

ing reduction, but quickly regain virulence when more favorable soil is infected. Since the etiology is understood, a great many means contribute to our equipment in the great war being waged against disease. Among the more recent is the improved vaccines, tuberculin, antitoxin, bacterins and serum therapy. The value of these biological products as curative agents is too well established to require any discussion here, and equally settled is their worth as immunizing agents. They experienced a rough voyage across the great sea of experimentation, being at times swept, apparently, out of existence by the unfriendly waves of adverse criticism; but with the persistence of a Jenner our knights of the laboratory have safely anchored the great vessel which bears the most inestimable blessings known to modern medicine. It is not claimed that an antitoxin exerts specific action on the offending germ, yet, clinically, this appears to be true regarding diphtheria germs. As an example of this fact, numerous recorded cases show a marked reduction in virulence brought about by no other known means. Starting with a case of diphtheria, typical in every respect, antitoxin is given in sufficient dose to neutralize the toxin. A second case is incubated from the first, but it is milder, showing marked reduction in virulence, and if to this second case antitoxin is administered early, we rarely find a third case incubated from the second. If such should be the result, it would be atypical. On the other hand, if no antitoxin is given to first and second, the third incubation will show complications if the patient does not die before the nervous system becomes disorganized.

The full value of biological products is but poorly understood, and not sufficiently appreciated. By their use the malignancy of diseases heretofore attended with high mortality can be entirely prevented, and others cured by no remedy so effectual.

We will not discuss the theories regarding the process of active immunization, or antibodies and the substances giving rise to them, yet, clinically, we are certain that, if immunity effectually prevents infection, the substance so potent as to establish immunity surely exerts a specific action on the germ when properly used as a curative measure; but as to whether such biological products inhibit the function of patho-

genic bacteria by direct action on their cellular substance, or indirectly by partial destruction of their field of nutrition remains undetermined.

Many problems concerning the true internal action, or forces at work within the body, which cannot be solved by experiments with body fluids externally, will doubtless be satisfactorily worked out in the near future, showing just how virulence decreases in proportion to antitoxic condition secured.

IMPORTANCE OF EXCLUDING INSECTS FROM THOSE SICK OF INFECTIOUS MALADIES.*

By E. M. SNEED, M. D., Stafford, Va.

Since the advent of the high power microscope a great field for investigation has presented itself, and thanks to the many earnest progressive researchers, the medical world has received much enlightenment as to etiology of contagious maladies. Not only have the specific micro-organisms of these diseases been discovered and classified, but the mode of transmission from the sick to the well is better understood.

That the house fly and mosquito are largely responsible for the spread of disease is beyond controversy, but there are other insects which I believe are important factors to be reckoned with, viz.: the bed-bug and flea.

In December, 1890, I treated a negro girl for typhoid fever; she came from Washington sick with the trouble and I saw her the day she reached home. She had a younger sister who was instructed not to enter her room, but in two weeks she developed the fever. To say that I was perplexed puts it mildly. This girl's sleeping apartment joined that of her sick sister, separated only by a board partition through which were crevices and knot holes. Now the bed of the sick was infested with chinchies, and beyond a doubt these insects inoculated this patient. The temperature was too low for flies, and all excrement was covered with boiling water before being thrown out, and all cloths used about patient burned immediately.

A better knowledge of the manner of the spread of diseases has greatly increased the burdens of responsibility upon us as guardians of the public health, but should this burden

*Read before the Virginia Public Health Association, at Norfolk, Va., October 24, 1912.

be carried by the medical fraternity alone? I say not. It is the duty of the physician, when in charge of a patient sick with a contagious trouble, to resort to every means within his knowledge to prevent a spread of the contagion by screening all windows and doors, and the stopping of all crevices in the walls and floors, and when possible the destruction of all fleas, bed-bugs and flies which may by accident enter the sick room, and last, but not least, by a free use of germicides and disinfectants.

Now all this seems easy enough, and so it is when the patient or the family is well enough off to supply these needs, but how many of us have had patients who were too poverty stricken to buy even the necessary food to sustain them? In such a case, what are we to do? Call on the overseer of the poor, who must then consult the supervisor who will tell him that there is no law regarding these matters; in the mean time the contagion from the sick is being spread and the physician is powerless to prevent it, unless he "goes down into his jeans" and furnishes the essentials himself.

The cities and counties should authorize the health board in cases demanding it, to apply every means necessary, even at the expense of the city or county, to safeguard the public and thus leave the hands of the health board free.

What is needed to make our work more effective is a closer co-operation of the State and counties with the health organizations; then may we hope to at least greatly reduce the death rate from diseases which annually claim hundreds of our most useful citizens.

Proceedings of Societies, Etc.

MEDICAL AND SURGICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

Reported by LEWIS C. ECKER, M. D.

This society met January 2, 1913, Dr. Parker presiding.

Exhibition of Pathological Specimens.

Dr. Hazen showed the picture of a case of uridrosis, that came in Freedmen's Hospital suffering with gangrene of the foot, later developing uremia. With this condition there appeared on the face, especially around the nose and eye-brows, small white scales; apparently

these came either from the sweat or sebaceous glands. Under the microscope they showed up as amorphous crystals.

Dr. Hagner mentioned a case of tuberculous kidneys in which the urine was negative to tubercle bacilli, and contained only blood, there being no pus. It is very rare not to have pus in tuberculous kidneys.

Dr. Copeland presented the histories of some cases of congenital syphilis occurring in the Out-Patient Department of Children's Hospital.

In discussion, *Dr. Crosson* wished to know if scorbutus and rheumatism had been ruled out.

Dr. Hagner said that salvarsan given to nursing mothers had a favorable influence on the infant. He had used neosalvarsan in children with good results.

Dr. Hazen stated that nearly all the cases in his experience had "snuffles." Personally he had used the inunctions for fear of upsetting the digestion. The "whites" rarely have the annular syphilides.

Dr. Roy saw a case at two months with recovery under gray powder, but at 7 years the child developed a specific iritis.

Dr. Kober wondered what percentage of cases were caused by false ideas in the minds of infected adults. Cited a case where an epidemic of gonorrhoea was caused in a country school by a man who thought that a cure would be brought about by intercourse with virgins.

Dr. Dunlop wished to know how long treatment should be kept up.

Dr. Simpson spoke of the teeth in congenital lues.

Dr. Copeland in closing, said it is rare to have rheumatism as early as the joint case mentioned, 3 months. Regarding scorbutus in this case, the tenderness was in the upper end of the femur and the rapid improvement under specific treatment made the diagnosis certain. Infants stand mercury well, seeming to cause only a slight laxative action at times. Protoiodide is given by preference, and for at least 2 years.

The following is an abstract of a paper read by *Dr. H. H. Hazen* on

Leucocytes in Syphilis.

In a series of 125 syphilitic cases, embracing 175 differential counts and a number of con-

trols, all done by the same person and with the same technique, there were the following results:

1. In normal persons the average total count is about 7500, the neutrophile count 55 per cent, and the lymphocyte count 33 per cent.

2. In the untreated secondary cases there is a slight leucocytosis, an occasional case showing as many as 20,000 white blood cells. The neutrophiles are absolutely and relatively increased. The percentage of eosinophiles is higher at this time than in control cases or in cases of late lues. Treatment causes a drop in the total count, with a slight actual and marked relative increase in the lymphocytes.

3. Under treatment a secondary case may show a lymphocytosis as high as 65 per cent, a condition that may persist for many months, or that may tend to approach normal in from three to five months, even though treatment is continued.

4. Cases of tertiary syphilis very rarely show an increase in leucocytes. The differential count in untreated cases is usually not far from normal. Myelocytes are very rarely found, even with moderate anæmia. Treatment usually but not invariably causes a rise in both the relative and absolute number of lymphocytes.

5. The cases with a large papular eruption, all in this series occurring in negroes, show a higher percentage of lymphocytes than do the other types of secondary eruption. The average was 42 per cent.

6. In cases of secondary syphilis negroes show a higher lymphocytosis, 35 per cent, than do whites, 26 per cent. In the late cases there is not so marked a difference.

7. Males show a slightly greater increase in the total count than do females, while females show a higher lymphocyte count than do males.

8. Age makes very little difference in the count. The very young tend to have a high neutrophile and a relatively low lymphocyte count.

9. Marked glandular enlargement does not mean a high lymphocytosis; in fact, there seems to be very little relationship between glandular involvement and the number of small mononuclears in the circulating blood.

10. Severe cases of secondary syphilis show

a higher total count, and a higher actual and relative neutrophile count than do the milder cases.

11. All cases of secondary syphilis that did badly under treatment, showed before treatment was begun a high neutrophile and a low lymphocyte count; all cases that showed a low neutrophile and high lymphocyte count did well.

12. Cases of late hereditary syphilis do not necessarily show a high lymphocyte count.

DISCUSSION.

Dr. Parker remarked on the difference in the percentage of the polymorphonuclear leucocytes and the small lymphocytes, there being from 70 per cent to 55 per cent in the former and from 20 per cent to 33 per cent in the latter. The prognostic indications of the differential count are of much value, a high lymphocyte count making a favorable prognosis.

Dr. Hagner spoke of the increase occurring in the polymorphonuclear leucocytes following the administration of salvarsan. He wished to know if *Dr. Hazen* had any data as to the general condition of the patients.

Dr. Simpson mentioned the observations that *Noguchi* has made with strains of spirochæta, and of the possibility of the size and shape influencing the prognosis.

Dr. Fremont-Smith stated that, in a series of 800 waiters, 80 per cent had syphilis.

Dr. E. L. Morgan said that syphilis had increased in the negro 65 per cent since the abolition of slavery.

Dr. Hazen, in closing, said the counts had been made on individuals in good physical condition. He emphasized the point that, for example, a mild case in a healthy person in which the lymphocyte count is low, the prognosis is poor, while the reverse is true.

Society adjourned.

Correspondence.

San Angelo, Texas, May 19, 1913.

To the Editor:—I desire to acknowledge receipt of the issues of the *Semi-Monthly* sent me. It has been most gratifying to get the number of inquiries that I have in reference to my article on phenol-petrolatum. I am espe-

cially pleased with the type of the physicians writing me, as I feel that they are men who are not only competent but willing to give it a fair test.

My own results are coming so fast, and are so gratifying that I wish it were possible to get this preparation into the hands of every physician at once.

As I stated in my article, the medicine is inexpensive, any of the best chemical houses could supply it, and at a cost of but a few cents a sufficient quantity may be obtained to give a three months treatment.

I merely make mention of this so if you see proper you may emphasize it in your next issue. There are no restrictions placed upon the making, or the use of it. It is apparently as specific in the treatment of tuberculosis as are the mercurials in syphilis.

A number have inquired of me as to whether they should select incipient cases for a test. I would much prefer that they give the first treatments to advanced and hopeless cases, provided these cases have sufficient vitality left to last three or four months under ordinary circumstances.

I prefer that they take these cases, as the improvement is so marked it will impress them at once, and they can begin its general use.

I would again like to reiterate, in the columns of the *Semi-Monthly*, that I will take pleasure in having the chemist forward them a test treatment—only asking that they furnish me with a brief report of their case.

SEVIER WARREN, M. D.

Book Notices.

Mechanical Vibration. Its Physiological Applications in Therapeutics. By M. L. H. ARNOLD SNOW, M. D., Professor of Mechanical Vibration, New York School of Physical Therapeutics; Associate Editor, *Journal of Advanced Therapeutics*; Late Assistant in Electro-Therapeutics and Diseases of the Nervous System, New York Post Graduate Medical School, etc. 476 pages, illustrated. Published by the Scientific Authors' Publishing Co., New York. 1912.

And now, to the various pseudoscientific degrees parasitic on the body medical, there has recently been added "M. T." which is in-

terpreted by those possessing it as "Mechano Therapist" (sic). In view of the increasing number of these near-masseurs, with just enough learning to make them fairly dangerous, it is well that there has been given the medical profession a treatise by one who has approached this comparatively new, certainly but recently developed, method of treatment from a truly scientific point.

Dr. Snow goes thoroughly into all phases of the subject, describing the various appliances, their mode of use, their employment for diagnosis and treatment. Along with a number of illustrations the volume contains tables of the sites of origin and exit of the spinal nerves in relation to the vertebrae; of the action of groups of muscles, their origin, insertion and nerve-supply; of reflexes, and of nerve control and stimulation. These tables are very valuable for reference and alone make the book of sufficient interest; but the whole volume will prove of much assistance, not only to the physician who employs mechanical vibration himself, but to that one who desires to gain an idea of the scope and limitations of the modality in order to be able to advocate intelligently its use.

A softly tinted page and large, clear type add much to the comfort of the reader.

M. W. P.

Tumors of the Jaws. By CHARLES L. SCUDDER, M. D., Surgeon to the Massachusetts General Hospital. 8 vo. 391 pages, with 353 illustrations, 6 in colors. Philadelphia and London: W. B. Saunders Company. 1912. Cloth, \$6.00 net; half morocco, \$7.50 net.

The author confirms the view that no physician meets many cases of new growths of the jaw, and he states that American medical literature contains no complete description of such growths. The objects of the monograph are chiefly two-fold: to determine early recognition and diagnosis, as well as what is the best treatment. The character and extent of work that may sometimes be done for relief, and possibly even cure, of some of the advanced forms of these infrequent new growths, as evidenced both by reports and illustrations, is at times really marvelous. The book, while interesting to the physician, will be of greatest service to the surgeon.

The Immediate Care of the Injured. By ALBERT S. MORROW, M. D., Adjunct Professor of Surgery in the New York Polyclinic. Second Edition. Revised. 8 vo. 354 pages, with 242 illustrations. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$2.50 net.

This book is intended solely as a guide in emergencies until the arrival of medical aid, which may occasionally be difficult to procure. It contains many good things even for the doctor, though its greatest value would likely be for the layman who has charge of many individuals, as the head foreman in a manufacturing concern, where emergencies have to be cared for temporarily; or it might be of equal importance on the farm remote from medical aid. Nearly one-third of the volume is given over to anatomy and physiology, most of which strikes us as unnecessary, and the directions about bandaging are mostly sufficiently full for an expert. But the fullness with which some subjects are treated does not hurt the book, and with many it may add to its value.

Operative Obstetrics, Including the Surgery of the Newborn. By EDWARD P. DAVIS, M. D., Professor of Obstetrics, Jefferson Medical College, Philadelphia. 8 vo. 483 pages, with 264 illustrations. Philadelphia and London: W. B. Saunders Company, 1911. Cloth, \$5.50 net.

While the title might indicate that this volume is intended only for the surgeon, and while it contains much that only the experienced surgeon is apt to undertake, it discusses in large part matters about which every physician doing general obstetric practice must have a working knowledge, and some work, too, that he possibly does more than the average surgeon. The author is a teacher of recognized ability, and what he has to say will carry the weight of his opinion. We venture to think, however, that for ordinary cases and the smaller operations the "operative obstetrician" could do with less display, especially where patients can ill-afford extensive outlay in preparation and several assistants. The publishers have produced quite a handsome volume, printed on heavy glazed paper.

Editorial.

Register Your Births and Deaths—Accurately—Promptly.

The work being done by the Bureau of Vital Statistics, in connection with the State Department of Health, should demand the most hearty support and cooperation of the medical profession.

This Bureau, authorized by the last legislature, went into active operation June 14, 1912. Since then, every birth and death occurring in the state is supposed to have been registered.

By the vast majority of the physicians this has been done promptly and completely. The benefit of this faithful discharge of duty is even now being secured by their patrons.

At the present time, just at the opening of the summer season, the Department of Health is mailing helpful literature on *The Care of the Infant*, to the parents of all children whose births, with post-offices, have been properly registered. This timely instruction of mothers will undoubtedly save much sickness and many lives.

A few years later, these birth certificates will again be a valuable asset to the children who were so fortunate as to have a painstaking, conscientious physician to usher them into the world.

Progressive States are even now requiring birth certificates to prove school age, in connection with the child labor law, etc. Persons moving to New York and elsewhere are realizing the inconvenience of having been born in a State which, though superior in many respects, has been late in taking up this important work.

In the excellent vital statistics law recently passed by North Carolina, the future requirement of a birth certificate for entrance into the public school is an important clause. Then, physicians who think today that the proper reporting of births is a trivial matter will be called upon by their patrons to explain. The importance of the child's full name is thus apparent to all.

The securing and study of death certificates is of even greater fundamental importance. The totally inadequate appropriation for vital statistics work has prevented the employment

of sufficient help to put to practical use the mass of certificates now being filed and indexed. The Assistant Registrar is attempting something in this way, by taking upon himself the additional work of his stenographer, who is thus permitted to compile the deaths from preventable diseases by counties.

Some valuable information will thus be made available.

An extremely interesting feature of this work, for the South in particular, will be the comparative study of the birth and death rates by races.

If for no other purpose this affords an excellent reason for every physician to see that not only is every death and birth, both white and black, reported in his own practice, but to aid in the work of teaching midwives and others the importance of this measure.

Many physicians, while they report regularly, do not pay sufficient attention to such details as names, birth-place, post-office, sex, color, etc.

Some of these defects will eventually figure in court cases, and may mean the loss of estates and reputation to their patients, and to themselves as well, as has been shown in Indiana and elsewhere.

Writing names legibly requires only a few seconds additional time and saves much confusion.

A well-known physician of Virginia would today obtain an inheritance, if he could produce a properly certified death certificate.

Nearly 8,000 deaths and over 12,000 births have been reported for the State during the first three months of this year. Physicians have it in their power to speedily place the State upon the Registration Area of the U. S. Census Bureau.

W. A. P.

Commencement Exercises of Richmond Medical Schools.

There was, if possible, more than usual interest felt in the Commencement Exercises of The Medical College of Virginia and the University College of Medicine, this year, owing to the fact that it marked the closing of the latter after twenty years' existence as one of the representative medical schools of the country, and the beginning of a new era for the

former, which it is hoped will bring new laurels to the honors it has already enjoyed. There were more than one hundred graduates in the various departments from the two schools eighty-two alone being in the medical departments.

The Medical College of Virginia commenced its exercises with the baccalaureate sermon by Rev. T. Clagett Skinner, on the evening of May 25. Clinics and demonstrations filled most of the following day, with an intermission for luncheon at Memorial Hospital, and a smoker was given by the Adjunct Faculty at the College in the evening. On the 27th, the Alumni Society held its twenty-fifth annual meeting at the College, and this was likewise followed by luncheon. This meeting was largely attended, and the following officers were elected for the coming year:—President, Dr. H. U. Stephenson, Toano; vice-presidents, Drs. J. B. Fisher, Midlothian, J. W. Brodnax, Richmond, and John Mann, Petersburg; secretary and assistant, Drs. C. C. Coleman and Ben M. Rosebro; treasurer, Dr. F. H. Beadles, and registrar, Dr. J. McCaw Tompkins, all of the last named being of Richmond. The final exercises were held at the City Auditorium at which Rev. W. Russell Bowie, of this city, was orator. The annual banquet was given at Commonwealth Club. An especial feature of the closing exercises of this college was the presentation, at the last faculty meeting, of silver loving cups to Drs. Christopher Tompkins and William H. Taylor, in appreciation of their long connection with, and services to the school.

Hospital appointments were as follows:—

Memorial Hospital—Drs. F. H. Lee, Richmond; F. H. Redwood, Suffolk, Va.; D. L. Elder, Trinity, N. C.; I. H. Goldman, Richmond.

City Hospital—Drs. A. I. Weinstein, Richmond; J. M. Cofer, Montvale, Va.; L. C. S. Haynes, Richmond.

Retreat for the Sick—R. H. Putney (junior).

St. Elizabeth's Hospital—Drs. S. S. Connor, Manassas, Va.; E. L. Caudill, Whitehead, N. C.

Stuart Circle Hospital—Drs. J. N. Elder, Trinity, N. C.; F. S. Steele, Turnersburg, N. C.

Johnston-Willis Hospital—F. S. Johns,

Farmville, Va.; H. P. Mauck, Richmond; G. C. Parker, White Plains, N. Y.

Orthopedic Hospital, Philadelphia—Drs. J. A. Board, Lynch Station, Va.; S. W. Thompson, Jr., Neuse, N. C.

St. Vincent's Hospital, Norfolk—Drs. C. E. Flowers, Cash Corner, N. C.; Isaac Trachtenberg, New York, N. Y.

Lewis-Gale Hospital, Roanoke—Dr. W. C. Caudill, Whitehead, N. C.

Johnston-Willis Hospital, Abingdon—Drs. V. W. Quillen, Nickelsville, Va.; J. W. Wilkins, Rose Hill, N. C.

Johnston-Willis Hospital, Rocky Mount, N. C.—Drs. F. W. Lewis, Jr., Morattico, Va.; C. M. Clark, Abingdon, Va.

Lancaster General Hospital, Lancaster, Pa.—Dr. W. H. LeFevre, Lancaster, Pa.

St. Luke's Hospital, South Bethlehem, Pa.—Dr. C. H. Arnold, Ardmore, Pa.

University College of Medicine.—Rev. H. D. C. MacLachlan, D. D., delivered the baccalaureate sermon to the graduates of this college on May 25th. The following day was given over to the commencement exercises of the Virginia Hospital Training School, twelve young ladies comprising the last graduation class of the Hospital, which on June 1, was consolidated with Memorial Hospital. Drs. Robt. C. Bryan and H. Stuart MacLean tendered the graduates and alumni a smoker at Westmoreland Club on the evening of the 27th, and the president, Dr. Stuart McGuire gave a large reception at his home on the evening of the 28th, following a meeting of the Alumni at the College. On the last day, the resident alumni gave a luncheon at Hermitage Club. Dr. Benjamin K. Hays, of Oxford, N. C., an alumnus of the first class graduated from the College was the orator at the closing exercises. Dr. McGuire in his closing remarks gave a concise history of the U. C. M., and stated the reasons which culminated in the amalgamation of the two schools. A most appropriate finale was the conferring of the honorary degree of medicine upon Dr. Charles Wardell Stiles, of the Department of Zoology of the U. S. Public Health Service, in honor of his great service to the South in his studies and work in fighting hookworm disease.

The following is a list of appointments to the hospitals:—

St. Luke's Hospital—Drs. B. F. Eckles, Atlanta, Ga.; B. B. Dutton, Lot, Va.

Hygeia Hospital—Dr. F. R. Ruff, Thaxton, Va.

Grace Hospital—Dr. R. G. Willis, Richmond.

Memorial Hospital—Drs. A. M. Bynum, Richmond; D. D. Martin, Gordonsville, Va.; W. L. Mason, Jr., Mattoax, Va.

City Hospital—Drs. M. L. Boyle, Richmond; M. F. Torregrosa, Porto Rico; Robert Whitehead, Amherst.

Sheltering Arms Hospital—E. LeB. Goodwin and E. A. Barber (undergraduates).

St. Vincent's Hospital, Norfolk—Dr. Thos. D. Morewitz, Newport News, Va.

Protestant Hospital, Norfolk—Dr. O. T. Amory, Messick, Va.

Sarah Leigh Hospital—Dr. R. W. Woodhouse, London Bridge, Va.

Highsmith Hospital, Fayetteville, N. C.—Dr. W. T. Rainey, Salisbury, N. C.

Central State Hospital, Petersburg—Dr. J. M. Earnhardt, Rockwell, N. C.

Gouverneur Hospital, New York—Dr. Geo. L. Cook, Waynesboro, Va.

Home for Incurables—E. G. Cata (undergraduate).

The Accomac (Va.) Medical Society

Held its regular meeting in the Masonic Temple, at Onancock, on the afternoon of May 21, Dr. J. H. Ayres presiding, and Dr. John W. Robertson in his place as secretary. The section on obstetrics reported. Dr. Jos. H. Hiden reported a case of dystocia from an abnormal contraction ring of the uterus. Dr. E. W. Robertson read a paper entitled "The Five Lookout Points in Pregnancy." There were informal discussions by Drs. Dick, Ayres, Kellam, DeCormis, Nevitte and Kerns, the subject in the main being eclampsia.

The subject of establishing a hospital in the County was discussed, and the amount subscribed was very encouraging. Committees were appointed to further agitate the movement among the physicians, and the matter will be taken up at the next meeting of the Society. The hospital movement was first discussed at the home of Dr. Ayres, several weeks ago, in

response to invitations issued by him, to the physicians to meet Dr. Dick, of Salisbury, Md. At this meeting, Dr. Dick stated the probable cost of erecting and maintaining a suitable hospital; shares were placed at \$100 a share, and each physician was allowed to have one or more shares, as he wished.

At the conclusion of the business meeting, a banquet, arranged by a committee composed of Drs. E. T. Mason, Geo. L. Fosque, and J. W. Robertson, was held at Hotel Allan. The banquet room was tastefully decorated, and the menu, served in six courses, was worthy of the "Eastern Shore." Dr. J. McFadden Dick, of Salisbury, Md, honorary member, was the guest of honor. The president, Dr. Ayres, presided as toastmaster, and the toasts were numerous and witty. The meeting was a great success both socially and scientifically.

A Demand for Eugenic Marriages.

The resolution with regard to eugenic marriages passed by the Episcopal Council of the Diocese of Virginia, at its meeting in May, is worthy of more than passing notice, as being the beginning, in this State, of a movement for the protection of the women from contracting diseases that in many cases undermine their health and destroy the happiness of the home. The law, requiring a certificate of health from the bridegroom, has been tested in some states, and as with all new laws, has some edges which will yet bear smoothing off.

The subject of eugenic marriages has, from time to time, been agitated by members of the medical profession in this State, but to become effective, such a discussion would have to receive the cooperation of the general public, as well as of the clergy and medical profession.

The resolution passed by the Council is as follows:—

"Resolved, that it is the sense of the council that, for the sake of the protection of women and for the sake of a higher appeal to men, it is desirable that ministers of the diocese, as rapidly as they can secure such cooperation from the physicians of their communities as shall satisfy them that their position will be effective, either by themselves or in conjunction with ministers of other churches, shall declare their determination to perform the marriage service of the church only when the man to

be married shall secure from the family physician of his intended bride, or from some other physician certified to by the bride's physician, a certificate of freedom from a communicable disease of immoral origin."

The Southwestern Virginia Medical Society

Met in Roanoke, June 3 and 4, Dr. J. T. Graham, of Wytheville, presiding. The local committee of arrangements was composed of Drs. Pedigo, Trout and Brady. A number of papers, including a most interesting symposium on Appendicitis, were read by members and invited guests, and freely discussed. The executive committee recommended that the Society go back to its original plan of holding two meetings a year.

Marion was chosen for the next place of meeting. Dr. John A. Tipton, Hillsville, was elected president; Drs. R. H. Woolling, Pulaski, and A. Fullen Horne, Glade Spring, vice-presidents, and Dr. A. B. Greiner, Rural Retreat, was re-elected secretary-treasurer.

The Medical Society of the State of North Carolina

Will hold its annual meeting in Morehead City, June 17-19 and *not* June 10, as was incorrectly stated in our last issue. This meeting promises to be as pleasant and interesting as always.

The Northern Neck (Va.) Medical Association

Held its semi-annual meeting at Irvington, May 22, with a good attendance. Several interesting papers were read, after which the election of officers was held. Dr. C. T. Pierce, of Litwalton, was elected president, and Dr. R. O. Lyell, of Warsaw, secretary and treasurer. After the meeting, the ladies of Irvington tendered the doctors an elegant and most enjoyable banquet.

The Medical Department, University of Virginia,

Will hold its closing exercises in connection with those of other departments of the University, June 15-18.

The Association of Surgeons of the Southern Railway

Held its eighteenth annual convention at Hotel Chamberlain, Old Point, Va., June 3 and 4, with an unusually large attendance. An

address which was most enthusiastically received by the surgeons was that of Col. W. A. Henderson, Knoxville, chief attorney of the road, who suggested that every railway in the country should have a well-organized medical department, as its members could render great assistance in legal decisions resulting from accidents, and should number a physician among its vice-presidents.

Officers for the coming year are:—President, Dr. R. J. Noble, Selma, N. C.; vice-presidents, Drs. J. F. Weathers, New Albany, Ind., W. P. Horton, North Wilkesboro, N. C., G. B. Thornton, Memphis, and E. P. McCollum, Greensboro, Ala.; secretary-treasurer, Dr. J. U. Ray, Woodstock, Ala., and member of executive council, Dr. A. R. Shands, Washington, Washington, D. C., was selected for the place of meeting for 1914.

Dr. Chas. V. Carrington,

Richmond, Va., who was operated upon for appendicitis shortly after his return from an European trip, is much improved, and will resume his work shortly.

Mountain View Sanatorium.

We regret to note the death, on April 20, of Mrs. Leslie G. Barnett, founder of Mountain View Sanatorium. She is succeeded by her son, N. D. Barnett, Jr., as secretary-treasurer. Dr. W. E. Lawson, Jr., one of the Catawba Sanatorium Resident Physicians, has succeeded Dr. Lee J. Hammett, resigned, as Medical Director.

The present management expects to continue the Sanatorium along the plans established and followed by the founder.

Dr. G. M. Cooper,

Of Clinton, N. C., has been appointed County Superintendent of Health of Sampson County, North Carolina, to devote his entire time to the work.

The Virginia State Board of Medical Examiners

Will hold their summer sessions at the Mechanics' Institute, Richmond, June 24-27. Dr. R. S. Martin, of Stuart, is president, and Dr. Herbert Old, of Norfolk secretary-treasurer.

The United States Civil Service Commission,

Washington, D. C., announces an open competitive examination for men and women, July

2, to secure eligibles from whom to make certification to fill a vacancy, and similar vacancies as they may occur, in the Government Hospital for Insane, Washington. The position pays \$75 a month and maintenance, with a chance for promotion. The examination will be held simultaneously in several cities in each state, names of which may be obtained upon application to the above Commission. Applicants must be citizens of or owe allegiance to the United States, unmarried, and graduates of reputable medical colleges not previous to 1908, unless they have been continuously engaged in hospital, laboratory or research work along the lines of neurology or psychiatry since graduation.

Dr. J. W. McNeill,

Of Fayetteville, N. C., was re-elected health officer, meat and milk inspector of that city, at a meeting of the board of aldermen the middle of May.

Dr. B. E. Summers,

A graduate of the Medical College of Virginia in 1912, and until recently an interne at the Retreat for the Sick, this city, has been elected Medical Inspector of the Richmond Health Department, *versus* Dr. T. V. Goode, resigned. Dr. Goode had only been with the Department for two months, having succeeded Dr. C. C. Hudson, and gave every promise of being most efficient in health work, but felt compelled to resign owing to ill health.

The Virginia Health Department

Reports that while there have been no serious outbreaks of typhoid fever reported as yet, there is much more typhoid in the State now than at this same time last year, and urges upon all citizens the necessity of precautions.

The State hookworm inspectors announce that the hookworm dispensary work is apparently growing in popularity. More than 3,000 people were examined in Appomattox County, and just a few short of 2,000 in Dickenson County, during the recent campaigns in those two counties.

International Congress of School Hygiene.

Interest continues unabated in this fourth Congress which will be held in Buffalo, N. Y.,

August 25-30. A novel feature will be the attendance of 2,000 boy scouts in full regalia. They will act as guides, interpreters, and special messengers for the foreign as well as home delegates. Special scout guides, wearing badges indicating which languages they speak, will meet each train at the Union Station, so as to be of service to the visitors.

The official languages of the Congress will be English, French, German, Spanish and Italian. Two hundred and fifty papers on all phases of school hygiene have been promised. Dr. Thomas A. Storey, College of the City of New York, is general-secretary.

Dr. St. Julien Oppenheimer,

Who was sometime ago elected assistant surgeon of the Police Department, of this city, has just been elected surgeon to succeed Dr. C. W. P. Brock, who retires from the office July 1.

The IVth International Congress for the Hygiene and Salubrity of Dwellings

Is another of the International Congresses which will be held in Europe this summer. The Congress will be held in Antwerp, and the dates selected are August 31 until September 7. The first Congress was held in Paris in 1904, and was followed by one at Geneva and a third at Dresden. The meetings will comprise four sections:—The Hygiene of Emigrants; Colonial Hygiene; Hygiene of Ports and Ships; and, The Development of Towns from the Hygienic Point of View. The General Secretary is Walther Van Kuyck, Town Hall, Antwerp.

Wortley F. Rudd, M. A., Ph. B.,

Of Richmond, has been elected an assistant in the department of chemistry of the summer school at Columbia University, but will return to the city in time to take up his duties as head of the department of chemistry at the consolidated Medical College of Virginia, to which position he was recently elected.

Maj. C. R. Reynolds, M. C.,

Left Washington Barracks, Washington, D. C., May 24, for duty with militia camp, Staunton, Va. Returned to Washington Barracks, May 31.

Registration of Births in New York City

Is being so strictly enforced, that, during 1912, there were only 312 instances of failure to report births. Of the delinquents, 300 were physicians and 6 midwives. In 300 of these cases, fines of from \$10 to \$100 were imposed. To show the importance of the registration of births, it is now necessary for a child to furnish a certificate of birth before obtaining admission to the public schools in that city, and it is also becoming a requirement in many places to secure employment.

Maj. Powell C. Fauntleroy,

Of the Medical Corps, U. S. Army, has been relieved from duty in Washington, D. C., and reported for duty at Ft. Monroe, Va., May 15.

Women to be Examined by Women Physicians.

A bill has recently passed the Legislature of New York State and been signed by the Governor to the effect that women who have to undergo physical examinations in securing employment, shall be examined by women physicians.

The Sheppard and Enoch Pratt Hospital,

Of Towson, Md., celebrated the sixtieth anniversary of the granting of the charter to its trustees by the Legislature of Maryland, May 8-10. Quite a number of former clinical assistants and assistant physicians were present and read papers, and it was a pleasant occasion to all in attendance.

The Louisiana State Medical Society,

At its annual meeting, in April, selected New Orleans as its place of meeting in 1914, and elected the following officers:—President, Dr. Fred J. Mayer, Opelousas; vice-presidents, Drs. A. J. Perkins, Lake Charles, A. H. Gladden, Monroe, W. S. Rutledge, Ruston; and secretary, Dr. L. R. DeBuys, New Orleans.

Mortality Statistics,

Prepared under the direction of Dr. Cressy L. Wilbur, chief statistician for vital statistics, show that the total number of deaths returned from the *registration* area for 1911 was 839,284, or 14.2 per 1,000, which is the lowest

death rate ever recorded from the registration area.

Though there has been a marked reduction in infant death rate in recent years, the rate for 1911 of 112.9 per 1,000 of infants under one year of age, which is about eight times the death rate at all ages, is sufficient to show that something should still be done to restrict the causes to which such deaths are chiefly due.

While the mortality rate was lower for all causes of death reported for 1911, except pellagra, suicide and other violent deaths, than for 1910, in a number of instances, we note that the 1911 rate was slightly higher than that reported from the registration area for 1909. The number of deaths from tuberculosis of *all forms* was 158.9 per 100,000 while the rate for organic diseases of the heart was 140.9, these two causing the largest number of deaths.

The registration area for 1911 included 50 cities of 100,000 population and over, twenty-two states, and all North Carolina municipalities which had a population of 1,000 and over in 1900.

Alexandria Hospital.

The board of trustees and women managers of the Alexandria, Va., Hospital have decided to have a campaign to raise funds for a new hospital to take the place of the present one which was established in 1872. It is estimated that to build such a hospital as they would wish, \$40,000 will be needed.

Obituary Record.

Dr. Thomas H. Barnes,

Retired physician, and one of the most prominent politicians and beloved citizens of Tidewater, Virginia, died at his home in Suffolk, Va., June 4, having just passed his eighty-second birthday. He was a native of Nansemond County. After finishing his academic education, he studied medicine at the Medical College of Virginia, from which he graduated in 1853. He served for many years as chairman of the Democratic party in his county, was a member of the State Legislature, and was elected to the Constitutional Convention,

in 1901. For a number of years, Dr. Barnes was a member of the Board of Visitors of William and Mary College and chairman of the Board of the Medical College of Virginia, having only recently been elected a member of the Board of the combined medical schools in Richmond. The Faculty of the Medical College of Virginia met and passed appropriate resolutions on his death. He had kept in constant touch with all the interests of his community, and will be missed by old and young alike.

Dr. John Daniel Turner,

One of the best known and most beloved citizens of New Kent County, Va., died at his home, Orapaxe, in that County, June 2, after having been in bad health for six years. His wife, eight children and one sister survive him. He was born in Gloucester County, July 25, 1833, his parents shortly thereafter moving to New Kent County. He studied medicine at the University of Virginia and later at Jefferson Medical College, graduating from the last named school in 1858. With the exception of the time he served as a surgeon in the Confederate Army, Dr. Kent practiced his profession in New Kent County until he was incapacitated on account of failing health.

Dr. Price W. Atkins,

After a short illness, died at his home in Marion, Va., March 2. He was born in Smyth County, Virginia, and studied medicine at the College of Physicians and Surgeons, Baltimore, graduating in 1878. He had been a practicing physician in Marion for thirty odd years, and was not only esteemed as a physician, but was also prominent in the work of the Presbyterian church, with which he was identified. His widow and three daughters survive him.

Dr. Edward T. Adams,

A prominent and beloved physician of Nottoway County, Virginia, died at his home in Crewe, June the seventh, aged seventy-five years. A native of Amelia County, he studied medicine at the Medical College of Virginia, from which he graduated in 1863. He was a gallant Confederate, having served throughout the War Between the States. His wife and several children survive him. The interment was at Blackstone, Va.

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TUBERCULOSIS OF THE LYMPHATICS.*

By L. H. REICHELDERFER, M. D., Washington, D. C.
Visiting Surgeon, The Garfield Memorial Hospital, The
Children's Hospital, and The Tuberculosis
Hospital.

In the warfare of the human body against the constant assaults of the ever-threatening bacillus of Koch, the lymphatic system plays an important part. The lymphatic glands, in their function of arresting and filtering out poisonous invaders which have gained entrance at some weakened spot in the body defences, are like military out-posts placed on the outer lines of a defensive position to protect the main body from attack; or if not able to prevent the onslaught, perhaps to give the main body time to prepare and organize its resources for a more successful resistance. And just as in military practice it is often necessary that the out-posts sacrifice themselves to secure the safety of the main body, so these lymphatic glands may succumb in their often successful efforts to repel invasion entirely, or at least to limit the damage inflicted.

General and local forms of lymphatic tuberculosis may be recognized. While generalized tuberculous lymphangitis is rare, many cases have been reported, notably by Osler, where the retro-peritoneal, mesenteric, and bronchial glands, as well as external groups, were enlarged, with little or no involvement of other structures. Such cases occurring acutely may closely resemble Hodgkin's disease.

The more usual manifestation, of course, is the localized involvement of a definite group of glands, notably the bronchial, mesenteric, or cervical. Tubercular infection of these groups

has similar causes, undergoes similar pathologic changes, and terminates in the various ways characteristic of tubercle generally. We should note in passing the importance of simple catarrh of the mucous membranes as a predisposing factor in the infection of these groups of glands; thus, chronic naso-pharyngeal catarrh strongly predisposes to cervical glandular involvement; bronchial catarrh, as in measles and whooping cough, to involvement of the bronchial glands; and intestinal catarrh to *tuberculosis mesenterica* and retro-peritoneal involvement. We can easily understand that actual tubercular foci, in regions drained by these glands, would practically in all cases cause the lymphatic involvement; but further than this it is now admitted that these chronic catarrhs may so weaken the resisting power of the various mucous membranes that tubercle bacilli may pass the membranes to the lymph channels without leaving any distinct tubercular focus in the membrane itself. Thus cervical scrofula may not always be derived from a tubercular tonsil or adenoid, but may result from the passage of bacilli through a membrane weakened by chronic catarrh.

The diagnosis of tuberculosis of the bronchial and mesenteric glands is naturally difficult, though in some cases it can be made with reasonable certainty; the surgical treatment of these internal involvements is well-nigh hopeless, though cases of abdominal scrofula have been cured by operation; the unfortunate victims of such infection have little to hope for except the possibility of the spontaneous cure which autopsy findings show us to have occurred in these glands as in other parts of the body. It is therefore my purpose to consider only the cervical involvement as being the type of tubercular adenitis of the greatest practical interest to most of us.

*Read before the Medical and Surgical Society of the District of Columbia, February 6, 1913.
For discussion, see page 152.

The affection is very common, occurring in all races, at all ages, though especially frequent, as we see it here in Washington, among the negro children. A few statistics of cervical tubercular adenitis may be mentioned; Fisher, in reporting the ages of 1484 cases, found 179 cases from 1 to 10 years; 702 from 10 to 20; 412 from 20 to 30; 106 from 30 to 40; 54 from 40 to 55; 18 from 55 to 66; not stated, 13. It has been estimated that 88 to 93 per cent of all cases of tuberculosis of the lymph nodes affect the cervical region. Dowd reports that of 212 consecutive cases of surgical tuberculosis, in 49 the cervical glands were involved; in 6 the inguinal glands; in 146 the bones and joints; the other 11 being variously distributed. It is scarcely necessary to review here the various factors of mal-nutrition, the defects of environment, and the bad habits of living which everyone recognizes as of great importance in producing the symptoms of lowered vitality so generally known as the "scrofulous tendency" or predisposition; on the other hand, we can recall cases occurring in children apparently most healthy and well-cared for.

Various diseased conditions of the area drained by the cervical glands may cause their infection. As before pointed out, an actual tubercular focus is not necessary; a systemic predisposition with a local point of lowered resistance, such as chronic catarrh, carious teeth, enlarged tonsils and adenoids, eczema, abrasions of the scalp or mouth, may allow the passage of the bacilli without the production of a lesion at the point of passage. Diseased tonsils and adenoids are not only important factors because of their general effect on the child's health, but because it has been found that 5 per cent to 8 per cent of all such tonsils and adenoids are actually tubercular; in such cases cervical infection would almost necessarily follow.

As to the exciting cause, the tubercle bacillus, nothing will be said except to refer to the fact which seems well established that the glandular infection is of low virulence as compared with tuberculous lesions elsewhere. Bonney says: "It is known that bacilli from glandular structures are considerably less virulent than those from almost any other tubercular focus in the body. Whether this is due to a difference in the infective material or to certain modifying influences of the lymphatic glands has not as

yet been determined." Various experiments have confirmed this point; guinea pigs and rabbits show a much less prompt response to inoculation of caseous glandular material than when inoculated with pulmonary bacilli, the rabbits sometimes escaping entirely. However, the virulence of the glandular bacilli may be easily increased by passage through a series of guinea pigs.

While the submaxillary glands are most often involved, none of the superficial or deep groups are exempt; even glands on the back of the neck may be infected and a complete circle or collar of diseased tissue may form around the neck.

The course of the tubercular affection is essentially chronic; acute cases are described, but a rapid enlargement of these glands is much more suggestive of a simple infection. Many cases of moderate enlargement and duration finally undergo resolution and disappear, but when the enlargement is of several months duration and of any considerable size this favorable outcome is hardly to be hoped for. The further growth may extend over a year or two, but finally it softens, with spontaneous rupture, and a slowly healing sinus will form in untreated cases; other glands will become involved and the process may continue for years before a final cure is effected or a general and fatal infection takes place.

The chief difficulty in the differential diagnosis of cervical adenitis is to distinguish between the chronic simple hyperplastic enlargement and the tubercular infection. The tendency to chronicity and gradual enlargement are evidences of tubercular involvement; as has been stated, masses of half inch size and four or six months duration are almost certainly tubercular; further enlargement and final softening and caseous discharge will, of course, settle the question, though an early diagnosis is most desirable and may often be determined either by tuberculin reaction or excision of a gland for examination. Syphilis, leukaemia, bronchial cysts, and lympho-sarcoma are other possible questions for decision. Recently this Society had the pleasure of hearing a paper by Dr. James Dudley Morgan on Hodgkin's disease; this paper and a full discussion emphasized the fact that a positive differential between Hodgkin's disease and tubercular adenitis in many cases cannot be made except perhaps by

tuberculin or by excision of a gland for microscopic examination and animal culture. I will not repeat the long list of clinical differentials usually given by the text-books, but will simply say that in any extensive or persistent involvement where the diagnosis is a matter of moment, the simple and conclusive procedure of the removal of a small gland for examination should be carried out. About two years ago a colored man in my service at the Garfield Hospital with a collar of hard discrete glands extending practically around his neck, and similar enlargements in both axillae, was thought to have Hodgkin's disease; a small gland was excised and found to be tubercular. During the next year, all the members of the surgical staff and two of the internes removed dozens of glands which seemed to grow anywhere on his neck or even in his scalp. The axillary nodules disappeared spontaneously. The man died a few months ago at the Tuberculosis Hospital from pulmonary involvement. This case in the beginning strongly resembled Hodgkin's disease.

The prognosis of tubercular cervical adenitis should be guarded. Dowd, who has had a very extensive experience with these cases, says the disease is a serious one, with a mortality only a little under 50 per cent in untreated cases. If the condition remained strictly local it would not be serious; the danger is, of course, that in the stage of caseation and softening the infection may be disseminated. Various authorities have compiled statistics which are impressive: Demme investigated 1692 cases of lymphatic tuberculosis occurring in 20 years in the Jenner Hospital and found that 21 per cent afterwards developed pulmonary tuberculosis and 8 per cent other types of infection, making 29 per cent of subsequent fatal involvement; Von Noorden traced 129 cases and found 28 had died of tuberculosis and 14 were suffering from the disease when examined; Fisher tabulated 1273 cases treated for lymphatic tuberculosis; 57 per cent were cured, 21 per cent had local recurrences, 13½ per cent had died, almost entirely from tuberculosis. As Dowd says, these statistics which represent the results obtained after careful treatment indicate beyond question the seriousness of the disease. It is unfortunate the public is not more aware of the danger of these enlarged glands; parents have lately been pretty well

educated on the question of tonsils and adenoids, but many of them attach no particular importance to the occurrence of these "waxen kernels" in the neck. These growths in themselves are probably not of much consequence, but just as a chronic appendix carries with it a constant menace of general peritonitis, so the caseating gland is a potential source of miliary or pulmonary tuberculosis.

The treatment naturally falls under the classification of surgical and non-surgical or medical. In considering medical treatment the fact that a formidable list of general and local remedies is offered, suggests the unreliability of most of them; some of the curative measures even now advocated have little more to recommend them than the highly prized "king's touch" of the middle ages. One thing is certain—these cases, whether treated medically or surgically, should have every advantage of fresh air, good food, and proper hygiene which are so essential in permanently curing tuberculosis in any form. Many early cases, with careful attention to these essentials, and appropriate treatment of diseased throat and mouth conditions, will recover without any general medical or surgical treatment at all. In a condition with a tendency to spontaneous recovery in a fair percentage of cases, it is natural that certain remedies should receive undue credit at times, but there is no doubt that the test of experience has proven the value of cod-liver oil, the hypophosphites and the iodide of iron internally and perhaps the application of iodine locally. In connection with local treatment, the mistake is often made of allowing or advising massage to be used on these enlarged glands; this is certain to do harm, as it would in any other tubercular lesion in the active stage, when rest and immobility are so desirable.

It seems to be the consensus of opinion that the X-rays, so valuable in lupus and similar cutaneous lesions, have a beneficial effect on the small, firm, recently enlarged glands, many such cases improving so rapidly that a positive action must be admitted. All observers, however, warn against the use of the rays in advanced cases where there is any suspicion of softening; treatment makes them worse and also tends to delay the necessary surgical interference. It is said in severe or recurrent cases,

post-operative exposure to the rays renders a further recurrence much less likely.

The use of tuberculin suggests itself, but the opinions of those who have had experience are not in accord; some claim good results when tuberculin is carefully given in proper dosage. In a recent symposium in the Pennsylvania Medical Society, some harmful effects were noted and a warning sounded against the use of tuberculin by any one who is not competent to determine correct dosage. Dr. Solis-Cohen reports that he depends on the behavior of the lymphocytes to determine dosage, a rise in lymphocytes indicating a proper dose, and a fall an excessive dose. If this blood finding proves reliable, it may aid in the administration of a remedy which has undoubted value if carefully given, but which is certainly dangerous if given indiscriminately. Continued observation of the opsonic index is generally admitted to be almost out of the question in routine work and Dr. Cohen's suggestion, involving nothing more complicated than a differential leucocyte count, may prove to be a point of great practical value.

Many of these cases finally develop multiple, persistent sinuses in which a mixed infection exists, which fail to heal after repeated operations. About three years ago I reported to this Society the case of a girl seen at the Tuberculosis Hospital who had previously been operated on in various hospitals for recurrent glands, and whose neck was a thickened indurated mass of chronic sinuses. The girl was thoroughly septic and further operation seemed inadvisable at the time; various local treatments were tried without effect, but finally the sinuses closed after injections of bismuth paste. This girl during her stay in the hospital made a rather remarkable gain in weight from 63 to 127 pounds in a period of nine months. Vaccines would no doubt have helped this case and Dowd speaks well of the action of X-rays on sinuses which at times may be inoperable.

Various injections of antiseptics or irritants, such as carbolic acid, iodoform or iodine, have been used; such treatment seems to me as irrational as the injection treatment of piles or hernia, and while such procedures may have been justifiable in the days when major surgery was a matter of last resort, they should hardly be considered under modern conditions.

I think there is no question that a radical

operation for the removal of these glands offers the best chance of a permanent cure and gives less opportunity for further dissemination of the infection than any other method of treatment.

It is no doubt allowable to employ palliative measures in early treatment, but only with the understanding that if prompt improvement is not obtained a radical operation should be done. Fixed rules of procedure cannot be laid down any more than in determining the necessity of operation for appendicitis; it is probably safe to say that any infected gland as large as half an inch which resists tonic and local treatment for three months should be removed. If neglected, instead of discrete glands, easily removed, there will be a mass of adhesions, thickened tissue and caseous debris, impossible of complete extirpation. The technique of the operation will not be considered here; a thorough operation, while difficult and tedious, is not particularly dangerous, the mortality being probably less than one per cent; however, the dissection to be effective must be thorough and in the neck must be done carefully as important vessels and nerves may be injured with serious hemorrhage or disfiguring paralytic sequels.

Statistics show that 70 per cent of cases can be permanently cured by radical surgical treatment, though in a series there will be a good many recurrences, especially in hospital practice where the convalescent children return often to very unfavorable home surroundings. While surgery cannot hope to cure all of these cases, it undoubtedly offers the patient the best chance of a permanent cure by removing from the body a focus of infection which is a serious menace to health as long as it is allowed to remain.

1721 Connecticut Avenue.

INDICATIONS FOR THE HIGH FORCEPS OPERATION.*

By HERBERT OLD, M. D., Norfolk, Va.
Secretary Medical Examining Board of Virginia.

At the present time when the operation of Caesarean section has been so simplified and perfected, and induction of labor can be performed readily and almost with certainty by the insertion into the uterus of dilating bags

*Read before the Section on Obstetrics and Pediatrics of the Norfolk County Medical Society, May 26, 1913.

and the auxiliary use of pituitrin, castor oil, quinine, and strychnine, it will appear to many of my hearers no doubt that I have chosen for discussion tonight an obsolete, dangerous, and mutilating method of delivery.

This operation carries with it a fetal mortality between 17 and 26 per cent; therefore, it should never be considered an elective operation; and if the time comes when every one can and will calculate accurately the degree of pelvic contraction, determine the size of the child and the hardness of its head, be able to say that the labor pains will be strong and that the soft parts will dilate readily before the test of a long first stage of labor and frequent vaginal examinations, we would then be able to say that forceps should never be applied to the head above the brim of the pelvis. However, we have to meet conditions as they now exist, and as there are many cases that have gone beyond the time when induction of labor or Caesarean section would be justified, our remaining operations of choice are prophylactic version, forceps without or with pubiotomy, symphyseotomy, or craniotomy, or better, basiotripsy. Much of the abuse bestowed upon the high forceps operation is due to the fact that the case was not studied sufficiently to see if the child's head could be made to engage in the brim without undue overlapping of the os pubis by employing the Mueller-Kerr method, by seeing if the whole hand of the operator could be made to pass the inlet, and by resorting to a few moderate pulls with the forceps, the patient being in the Walcher position (this adds about 1-3 inch to the true conjugate).

Instead of resorting to the above mentioned measures, many operators attempt the impossible, namely, to pull a head through a brim too small for it to pass, thereby making the forceps a basiotribe instead of a tractor to assist the labor pains.

It may not be amiss to mention, a few of the essentials in order to justify the application of forceps:—1. The head must be fairly moulded; 2. There must be little overlapping; 3. Success in engaging the head in the brim; 4. Membranes ruptured; 5. Empty bladder and rectum; 6. Full dilatation of the cervix; 7. A living child; 8. Absence of uterine inertia.

As most of the indications for the high forceps occur in cases of dystocia due to contracted pelvis, it will facilitate matters to classify the

latter. DeLee in his latest work has the following arrangement:—

1.—Pelvis with a conjugata vera less than $5\frac{1}{2}$ cm. in the flat, and 6 cm. in the generally contracted variety. These are absolutely contracted.

2.—Pelvis with a conjugata vera of $5\frac{1}{2}$ to $7\frac{1}{2}$ cm. in flat, and 6 to 8 cm. in the generally contracted types. These are relatively contracted.

3.—Pelvis with a conjugata vera of $7\frac{1}{2}$ to 9 cm. in flat, and 8 to $9\frac{1}{2}$ cm. in the generally contracted. These are moderately contracted.

4.—Pelvis with a conjugata vera over 9 and $9\frac{1}{2}$ cm. respectively, and are border-line cases.

In the absolutely contracted pelvis, Caesarean section is indicated whether the child be alive or dead. In the relatively contracted pelvis, if the patient is apparently not infected, is not exhausted by a long labor, the child is living, and the patient is willing to take the risk for the sake of her child, Caesarean section is indicated; otherwise, craniotomy, or better, basiotripsy, is the most humane operation. This brings us to the much discussed question whether we are justified in performing craniotomy on a living child. I should say undoubtedly "yes" if thereby we insure a living mother. A good working rule and one that every operator should apply when confronted with this situation is, what would I advise if the patient were my wife or sister, and it is always incumbent upon him to have a confrere called in consultation.

Whereas there is no reproach attached to doing the first craniotomy on a patient, a second one on the same patient by the same operator shows gross ignorance of modern obstetrics. In the moderately contracted pelvis, it is this class that taxes the ingenuity and knowledge of the operator. As it is impossible to know beforehand the hardness of the child's head, and how effective the pains will be in moulding same, many of the best obstetricians advocate in primiparae, the test of labor. Munro Kerr of Glasgow says that he can in this way know how to manage successfully future deliveries in the patient, although she may lose this first child, whereas if labor is induced at the 32nd to 34th week with its infant mortality of about 35 per cent, one is as much in the dark in regard to the second pregnancy as at the first one. If the pains should be good and mould

the head into the inlet, thus over-coming the disproportion, about 75 per cent are delivered spontaneously or with the assistance of the forceps. If the head does not mould sufficiently, there are four operations to be considered:—Prophylactic version, forceps, hebosteotomy and craniotomy.

If there is no abnormality present save the contraction of the pelvis, the question now narrows down as to whether it is easier for the head to pass coming last than going first. Wolff and Leopold say that the amount of damage done the children and the mother is about equal. Harrar, of the Lying-in Hospital, New York City, quotes the following statistics:—In 60,000 labors the fetal mortality in high forceps, including deaths in the first ten days, was 26.16 per cent, compared with a fetal mortality in all cases of version of 41.32 per cent. In 269 cases of recognized pelvic deformity occurring in 30,000 labors in the out-door service, the infant mortality of high forceps was 25 per cent, and version was 46.6 per cent, the degree of contraction being about the same. Even in pelves in which the true conjugate was greater than 8.75 cm. (3.44 inches), the fetal mortality by version was 40 per cent. In a flat pelvis with anterior parietal bone presentation, forceps is preferable; with posterior parietal bone presentation, version is preferable. Harrar's personal experience in this class of cases was as follows:

In 17 high forceps with head above the brim—The number of children who survived was 14, or 82.4 per cent. The number of children still-born was 2, or 11.7 per cent. The number of children dying within ten days was 1, or 5.9 per cent. A total infant mortality from high forceps of 17.6 per cent.

In 51 versions on living children, the number of children who survived was 38, or 74.5 per cent. The number of children still-born was 7, or 13.7 per cent. The number of children dying within ten days was 6, or 11.8 per cent. A total mortality from version of 25.5 per cent.

From these statistics it is found that version is the more dangerous operation for the child, and it is not surprising as one has only about ten minutes in order to obtain a living child, whereas one need not be hurried in the forceps operation. Again by employing the Walcher position, about 1-3 inch can be added to the

true conjugate. If by moderate strength and 3 or 4 tractions with the forceps the head cannot be made to pass the inlet, the remaining operations are hebosteotomy and craniotomy.

By cutting the pelvic girdle, all of the diameters of the pelvis are lengthened—the bones separate 2 or 2½ cm., and when the head passes 6 or 7 cm. With a separation of 6 cm. the true conjugate lengthens 1 to 1½ cm., the transverse and obliques 2½ to 3 cm. In flat pelvis the greatest gain is obtained as the anterior parietal bone fits into the gap between the divided bones. According to DeLee most operators of experience have discarded this operation in primiparae and will not perform it in cases complicated by heart and kidney disease, infection of the parturient canal, extreme obesity, colossal varicosities of the genitals and an extremely large child. In multiparae, however, it is the operation of choice, provided the mother and child are in good condition, as it offers excellent chances of saving the two patients. Extra-peritoneal section is a very dangerous operation for both mother and child and is contra-indicated when there is infection; if the case is clean, the classical Caesarean is preferable. Craniotomy is indicated when the child is dead or shows marked signs of exhaustion due to prolonged compression in labor, or has been damaged by attempts with forceps or version, if the patient refuses to take the risk of an operation, if infection is positively or possibly present, and when hebosteotomy is contra-indicated. The forceps should never be used as a compressor in this class of cases, for even if the child is born alive it is apt to die in a few hours or days, and the operation was a failure, in addition to having possibly mutilated the tissues of the mother in an alarming or serious manner.

In pelves only slightly contracted (over 9 and 9½ cm.), labor usually terminates spontaneously unless the child is unusually large, in which case it would have to be considered in the moderately contracted class. Such large children can be prevented by inducing labor at full term, not allowing patients to go over term more than 7 or 10 days.

In normal pelves the high forceps is applicable in cases of prolonged dry labor, when the head is above the brim, and when the uterus is tightly contracted about the child, with the retraction ring between the head and shoulders.

Another indication is uterine inertia in multiparae, the membranes being ruptured, and the cervix fully dilated. First, give the mother morphine and allow her to get some rest; then apply the forceps. Again, in many cases of rigid cervix with the cervix only partly dilated in spite of vigorous pains and there are evidences of exhaustion on the part of mother or child or both. A synopsis of what present-day obstetrical art demands of the physician in cases of probable or already present dystocia is as follows:—1. Get a history of previous labors; 2. Take pelvic measurements in all primiparae and all multiparae with a history of difficult labors; 3. Do not allow patient to go over full term more than seven or ten days, especially if there is a history of large children; 4. Suspect a contracted pelvis if the patient is in labor and you get the following signs: (a) ballottement or absence of presenting part; (b) sausage-shaped bag of waters which bulges with the pains; (c) the cervical canal is empty and hangs down; (d) no presenting part is felt with two fingers in the vagina; (e) pendulous abdomen in primiparae in last two weeks of pregnancy, or in multiparae after labor sets in. 5. Have a confrere in consultation in any case of difficult labor. 6. In the management of each case be conscientious and take plenty of time to study all of its aspects, and be an advocate for what is best in the interest of the mother, rather than what will satisfy and add to the operative ability of the accoucheur.

210 West Freemason Street.

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SKIN GRAFTING.*

By CHARLES STANLEY WHITE, M. D., Washington, D. C.

In an operation as old as skin grafting, one may prophesy that the last word has been said, but the progress of surgery has not been confined to new fields, for old subjects have been rehabilitated in new aseptic clothing. Operations proclaimed as new have, upon investigation, proven to have been discarded in the dark ages of surgery, and so it may be that

the author may merely summarize or classify well known facts on the one hand, or, on the other, suggest new phases of skin grafting. It is true that we are prone to accept text-book statements without hesitation, and, naturally, it is not the province, privilege, or practice, of the physician to verify these statements, and only a few have opportunities to do the necessary research.

Skin grafting is not employed nearly as much as it should be. An operation that is usually successful, almost devoid of danger, and one that hastens a convalescence and lessens unsightly scars certainly has much to commend it in the routine of surgical work.

The three methods usually employed are the Reverdin, Thiersch and Wolfe-Krause. Before any method is employed the surface upon which the graft is placed must be in such a condition that sufficient nourishment is afforded, and unless we have that condition present no amount of grafting will succeed. It is essential that the granulations are bright red, bleed easily, and are not edematous or covered with lymph or pus. It may be necessary to curette, or roughly brush with a piece of gauze, exuberant granulations, and should oozing follow, the flow should be stopped by pressure. A clot of blood between the graft and the skin will cause a failure. The proper preparation of the soil determines whether grafting can be done.

The method of choice generally depends on the area to be covered and amount of skin available, but for convenience they will be described in the usual order.

The Reverdin method is applicable for those cases with a large surface and insufficient amount of graft to completely cover it. The grafts are obtained by lifting the epidermis on the point of a needle and clipping the small piece of skin attached, so that a minute section of epidermis clings, pierced by the needle. This is transferred to the raw surface and the process repeated until the granulating area is studded with islands of epithelium, which regenerate epidermis until the entire field is covered. Each little graft becomes an island of epithelium, increasing in size until it joins its neighbor. The process is slow, but has the advantage that no anesthesia is required and a large unhealed surface can be given a great impetus in its healing.

The most popular method of grafting is the

*Read at a meeting of the Hippocrates Society, January 9, 1913.

Thiersch, by which means large plaques of the superficial skin are removed and spread completely over the denuded surface. This offers probably the best method of transferring skin and more uniform success attends it than either the Reverdin or Kraus-Wolfe. The failure of this graft is usually due to the technique employed. Scarcely two operators follow the same steps and there is quite a diversity of opinion, probably accounting for the indifferent results.

In cutting the grafts, the author has found a microtome blade or a skin graft knife superior to a razor or an amputation knife. The outer side of the right thigh is the area of selection, as thrombosis less commonly follows than other regions of the thigh and the sensibility is less keen. The skin should be put upon the stretch by the hands of the assistant and the operator, the skin and knife moistened with salt solution and cutting done with a saw like motion. Hooks or boards for holding the skin are not nearly so good as the hands. If the section is the proper depth, the graft will back up on the blade, and the surface from which it is removed will be pink and show a number of small bleeding points, not unlike the strawberry tongue.

The preparation of the skin seems to be a subject upon which authors are not in accord. We are advised by some that the skin should be cleansed but no antiseptic used, as chemicals injure the epithelium. At the same time, if an infected graft is transferred to a granulating surface, we may expect suppuration or cellulitis to follow. It is the practice in many clinics to first apply a coat of 50 per cent tincture of iodine, and the author can state that in his experience this does not interfere with the growth of the epithelium and almost excludes infection. It would appear that the chemical activity of iodine would inhibit cell regeneration, but clinical experience contradicts this assumption.

Instead of transferring this graft to salt solution, it can be easily floated off immediately on the granulation, care being taken not to handle the graft with forceps; apply it evenly and allow it to slightly overlap the sound skin. Firm pressure should be made upon it to remove air or solution which may lift the graft from the raw surface. If properly applied, the graft appears bluish and almost transparent. Each succeeding graft should be applied in the same

manner, overlapping each the least bit, until the entire surface is covered. It is a popular fallacy that all grafts should be covered with rubber or gutta percha tissue, and while it is true that a graft is successful when thus treated, it does not do as well as leaving the graft exposed to the air. A screen of wire, with a covering of one layer of gauze should be strapped with adhesive or tied with tape over the grafted area, and it is by this means a free circulation of air is permitted without contamination or contact. The graft not only does well because the excretion is not dammed, but remains *in situ*. With the usual dressing of gauze or rubber tissue, the grafts may be displaced by movements of the patient during sleep or by friction of bedclothes. The open treatment has so many advantages over the older method, that it is only a question of time before it will supplant it.

The early redressing has destroyed many a graft that should have been a success. Eight to ten days should elapse before any change is made, whether the open or closed dressing is used, as early dressing tends to disturb the filmy, delicate grafts and sever their source of nutriment.

The Krause-Wolfe grafting has been disappointing in the hands of many surgeons, for it is beset with more difficulties and entails more to the donor than the superficial grafts of Reverdin or Thiersch. The entire thickness of skin is removed, with as little subcutaneous fat as possible, and attached directly to the surface to be covered, by a few sutures at the margins. The same requisites for the uncovered surface are true in this technique. The blood supply must be unusually good. Should the graft take, we have a thick movable hair bearing skin, if such is desired, and in this respect cannot be approached for its utility by any other kind of grafting, yet the frequent failure has more than offset its advantages. One-third is the allowance made for contraction.

Finney has modified this in a way that is both ingenious and practical. Should the object be to transplant a whole thickness graft to the face, a flap one-third larger than necessary is partially detached from the abdomen and attached into an incision in the forearm, the limb securely fixed by bandaging or splints. We then have a graft with two attached borders, one natural attachment at its origin, and

the other artificial into the arm. At the end of two weeks the abdominal attachment is cut, the blood supply in the meantime having been appropriated from the arm. It is a simple matter to place the arm in position to fix the flap at the desired point on the face, strapping the arm to the head to prevent detaching the graft. After two weeks, the connection to the arm is cut. By this transplantation in two stages, we can be assured of an excellent blood supply and the success of the operation.

One way of determining if any graft has proper circulation is to lightly constrict the limb above the area, watching for the appearance of duskiness and then releasing the tourniquet, and noting with what rapidity the normal color is restored compared with the surrounding tissues.

Grafts are spoken of as autodermic, or those transferred to another region of the same individual; isodermic, those from different individuals of the same species; and zöodermic, or the transplantation between different species.

The autodermic are by far the best and will succeed when all others fail and is the method of choice, all other things being equal. The isodermic generally is a much more abundant field, as friends and relatives are often disposed to furnish skin, but a large percentage of failures attend this process. The zöodermic graft is generally unsatisfactory unless unusual conditions are present. It is only when our fund of human skin is depleted, that the beasts of the field and the birds of the air are sought.

In summarizing, it may be safely stated that the autodermic graft by the Thiersch method is the best; that isodermic grafts are fairly successful; and that the autodermic Wolfe graft is particularly well adapted for cases of scalping. Scarlet red is of positive value in stimulating epithelization.

911 Sixteenth Street.

THE DIAGNOSIS OF IMPAIRED LIVER-FUNCTION IN CERTAIN GRAVE MEDICAL DISEASES.*

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Introduction.—The diagnosis of impairment of the functions of the liver is far more im-

portant than it has been considered to be. This organ plays a very significant part in health and also in disease. Heretofore, the coated tongue, nausea, loss of appetite, dizziness, and the mental dulness of so-called "biliousness" served to admonish the practitioner of a "torpid liver" on the one hand; and the swelling, the hepatic heaviness and pain, the liver tenderness on pressure, the icteroid complexion, the enlarged veins and the ascites or hemorrhoids served on the other hand to awaken the physician to a knowledge of serious liver disease. But it has not been the habit to study the relation of the liver function upon the more or less early disturbances in the pathology of the liver and elsewhere. It cannot be gainsaid that the proper and adequate understanding of the bearing that the liver function has upon the course and termination of grave disease-conditions is most significant. Not a few clinical pictures that appear to be based upon kidney or heart impairment originate or at least are affected by liver-function.

Hence, it has been with no little satisfaction that the urobilinogen test of liver function has been followed in my laboratory as a routine diagnostic method. While it is not a test that tells all that the diagnostician would wish to know about liver-function and liver pathology, it is just another step forward in the effort to reach a diagnosis and interpret the significance of symptoms in cases in which the liver-function is impaired.

Physiology.—The liver lobule is supplied with blood from the portal vein and from the hepatic artery. The portal vein supplies the soluble food products from the alimentary tract and these are acted upon by the liver cells before being turned over to the general circulation for distribution and utilization in metabolism. The hepatic artery supplies the arterial blood from the heart for the maintenance of cell activity and function.

There are two chief functions performed by the liver:—bile production, and metabolism of soluble products in portal circulation.

The bile, both excretory and secretory, is an action of the liver cell. Bile contains water, salts, bile pigment, bile acids, cholesterin, lecithin, neutral fats, soaps, trace of urea sometimes, and nucleo-albumin, all, except the last which is formed in the bile tract, being an expression of liver cell activity. Bile derives

*Read before the Richmond Academy of Medicine and Surgery.

its coloring, yellow or golden yellow, from the bile pigments, bilirubin and biliverdin.

The bile pigments are derived from the hemoglobin. When the blood corpuscles disintegrate, the hemoglobin, it is supposed, is brought to the liver cell, where, under its normal action, the iron is liberated from it and converted into the compounds, bilirubin or biliverdin. The iron from the hematin is retained in the liver for future upbuilding of hemoglobin in blood-making organs while the pigments are thrown into the bile-canals and carried on to the duodenum. Here it is reduced into a substance called urobilinogen and later in the lower bowel urobilin or stercobilin, by the reducing action of putrefactive bacteria. Some of the urobilin is reabsorbed and returned to the liver by portal veins, and again used in the formation of urobilinogen.

Bile acids are formed directly in the liver cells. Glycocholic and taurocholic acids perform the following service:—(a) keep the cholesterin in solution, and (b) assist in the splitting and the absorption of the fats in the intestines.

Cholesterin, an excretion of the body, is not formed in the liver, but eliminated by liver cells from the blood, and it is a waste product of cell life and is eliminated, besides, by the skin, sweat glands, sebaceous glands and milk.

Lecithin is an excretion from the body.

Glycogen formation and storage is an important function of the liver. Carbohydrate food, in large measure, reaches the liver as dextrose, or dextrose and levulose, and is converted, by dehydration, into glycogen by the liver cell.

Protein metabolism in the liver affords some supply of glycogen. Afterwards the nitrogen is converted into ammonia and the urea, the remaining non-nitrogenous portion of the protein, is converted into sugar by synthetic action.

Fat may increase the amount of glycogen in the muscles. As neutral fats split into glycerin and fatty acid, the glycerin may be a source of glycogen.

Urea is formed in the liver cell and is gotten from the nitrogen of the protein material. It is eliminated from the body by the kidney but is not formed in the kidney.

The Source of Urobilinogen in Urine.—*

There are five theories as to the origin of urobilinuria:—The hepatogenous, the hematogenous, the histogenous, the renal, and the enterogenous theories.

The hepatogenous and enterogenous theories seem best to explain the appearance of the coloring matter in the urinary secretion, although the haemic origin, in some instances, seems important and necessary to fulfill the requirements of the clinical phenomena.

The liver, where the conversion of bilirubin takes place, seems best to fulfill all the requirements of clinical conditions. If the blood disorders show urobilinogen, it may but mean that the liver cells are incapable, owing to impairment, to make the conversion of the let-loose hemoglobin; also, in the case of urobilin re-circulating from the intestines, the liver cell, impaired by hyperaemia, by degeneration or by fibrosis, is incapable of making the transformation again into the bile pigment. Thus may the urobilinogen, seeking an outlet, appear in the urine, the liver being the chief cause of its non-utilization in bile.

The following statements may be accepted as established that the normal liver cells permit no significant amount of urobilinogen to pass into the general circulation unless there is some very general condition of haemolysis which normal liver cells cannot take care of; that slight impairment of liver function may be seen by positive urobilinogen test; that if in normal persons a slightly pinkish reaction is obtained, a free purgation will free urine of the reaction; if, after free purgation, it persists, it is of pathologic significance.

Ehrlich's Aldehyd-Reaction in Urobilinuria.—In 1868 Jaffe discovered urobilin in pathologic urine, describing its fluorescence with zinc salts. Disque later showed that urobilin was derived from the mother substance, urobilinogen, by a process of oxidation, while Nencki and Zaleski showed that urobilinogen is produced from hematin.

Ehrlich, in 1901, discovered that para-dimethyl-amino-benzaldehyd produced in some urines, after standing, a cherry or rose-red color, but he was unable to explain the cause of this action. In 1903, Pappenheim noticed that the reaction was found in urines containing urobilin, and Neuboner established the identity of the cause of the reaction, as urobilinogen. The test, known by some as "Ehrlich's

*L. A. Conner and J. C. Roper, *Int. Arch.*, January 15, 1909. Page 532.

Aldehyd Test," by others as the "Urobilinogen Test." is simple and easily applied, and will, doubtless, as its full significance is more generally appreciated, become very essential to the study of certain disease conditions. The method of applying the test is to use a solution of para-di-methyl-amino-benzaldehyd, 4 gm. of 2 per cent; hydrochloric acid, 10 gm. of 20 per cent; water and a few drops of alcohol to 200 c. c. To about 5 c. c. of fresh urine, add one or two drops of this solution and, if urobilinogen is present, usually in a short time, say a few minutes, a rose-red color appears; sometimes this action is delayed from thirty minutes to two hours.

The urine should be fresh, because long-standing urine containing urobilinogen, by action of air and sunlight, becomes changed by oxidizing urobilinogen into urobilin. When the reaction is distinctly scarlet in cold urine, the reaction is pathologic, although there are variations in intensity of reaction. It has been suggested that the reaction be spoken of in terms like the following:—Negative when original color only appears (—O); a faint reddish color when looking through the column of urine, positive, or + 1; a pinkish or faintly reddish color looking from front, positive, or + 2; distinctly scarlet, distinctly positive, or + 3, when the reaction is alone of pathologic significance.

If the first appearance of urobilinogen in the urine denotes the beginning of impairment of the function of the liver cells, it is an important clinical event; and to know when that pathologic condition enters the clinical course of a disease affords the clinician ample opportunity for weighing well the probable bearing that such liver derangement is to exert upon the prognosis, to say nothing of the possibilities that lie before him in aiding and assisting the hepatic function to a return to normal.

Further, such knowledge may unravel the skein of puzzling symptoms and make clear the obscure behavior of certain diseases, bringing early to solution the questions of therapeutics attached upon the unthought-of stronghold of the disease. For it not infrequently happens that a disease condition persists and resists every therapeutic measure, because of the indefiniteness of some complicating state far removed from its usual and ordinary pathologic site.

If the kidneys are impermeable this fact is easily discovered; if the solids of urinary output are wanting, this is easily known; if albumin, casts or pus appear in the urine, this is readily interrupted; if indican, and acetone, or diacetic acid is discovered, it is quickly understood, but now, if the urine discloses urobilinogen to a pathologic degree the clinician is able to direct his attention upon the hepatic function and to study the bearing and relationship that such a derangement has upon the course and termination of the disease problem under treatment.

UROBILINOGEN IN URINE IN CERTAIN DISEASE CONDITIONS, WITH CASES.

Case I. *Atrophic Cirrhosis of Liver.*—White male, 65, man of business, alcoholic, taking from one to three large drinks of whiskey daily for past 40 years. When 36 years old, had jaundice and liver abscess. Has had "torpid" liver for many years. Some months ago, had an attack of dizziness and shortness of breath, which lasted for several days. Has rapid heart with no organic lesion. Smokes cigars excessively but does not inhale. Urine, examined December 18, 1912, shows trace of albumin, no sugar, no acetone, no excess of indican, considerable excess of phosphate, normal chlorides, no bile, no blood or pus, oxalate crystals, hyaline or granular casts. Urobilinogen test showed positive. Treatment directed to liver brought patient to satisfactory condition.

Case II. *Hypertrophic Cirrhosis of Liver; Cardiac Insufficiency; Nephritis.*—White male, 38 years; formerly moulder, now merchant; alcoholic. When seen one year ago, presented all signs of imminent death. Propped upon pillows, he showed marked dyspnoea, large liver, constant cough, rapid, irregular, weak pulse; plunging, throbbing cardiac impact upon the thorax; dropsical effusion in abdomen; œdema of extremities; dysentery; piles. Examination summarized: showed no signs of syphilis; had œdema of lungs, effusion of pleural sacs, incompetent heart; lower border of liver reached umbilicus; spleen enlarged; dropsical effusion evident; large protruding bleeding piles, and œdema of extremities.

Blood examination was negative; Wassermann negative; urine, considerable albumin

and granular casts; no blood, no bile; with urobilinogen test distinctly + 3. Under treatment mainly for liver, patient has been enabled to attend to business now for past eight months and is very much improved.

Case III. *Fibroid Pulmonary Tuberculosis and Atrophic Cirrhosis*.—White, female, unmarried; 42 years; weight, 110 pounds, very slender. Father died of Bright's disease at 68; mother died of hardening of liver at 66 years; brother died at 27 years of heart disease; father's father died of heart disease.

In early childhood, had measles twice, scarlet fever; when twenty years old had typhoid; has had grippe every winter, attended by persistent cough; no tonsillitis but "weak throat."

About two years ago, after mother's death, observed shortness of breath, pain in chest, about shoulder blades; chilliness and numbness, headache, nervousness in legs and tingling; had choking feeling, dizziness and insomnia; appetite was fair; constipated; no piles; no abdominal distention; heart beats were fast and irregular, and could not lie upon left side; menses irregular, painful and scanty.

Examination: Lung — Broncho-vesicular breathing general; bronchial breathing in left scapular and axillary regions; dry rales. Heart—No murmurs, but pulmonic sound accentuated; pulse, 80; temperature, 99° F. Liver small; abdominal region negative; urine shows no kidney disturbance, but positive urobilinogen. Treatment for liver condition; fresh air; forced feeding has increased weight 20 pounds; condition good.

Case IV. *La Grippe—Obstructive Catarrhal or Infected Cholecystitis*.—Mr. S., age, 45, married, one child. Patient presented history and symptoms of influenza:—Lassitude, chill, bronchitis, fever 102° F., pulse 100; neuromuscular pain in legs, arms, trunk; headache and insomnia. The usual treatment for la grippe was prescribed. On third day jaundice developed; this became more and more pronounced until it assumed a bronzed color. No great pain, but tenderness over the left hypochondriac region. Urobilinogen test was positive. Patient promptly yielded to treatment, after two weeks' illness. The obstructed and inflamed gall tract condition produced certain impairments of the liver and gave cue for treatment.

Case V. *Interstitial Nephritis.—Acute Hepatitis and Acidosis—Coma—Death*.—Female, white, aged 46, unmarried, frame very large, weighing in neighborhood of 190 pounds; sedentary life; accustomed to daily use of large amount of alcoholic drinks for past 25 years. When first seen in last illness presented symptoms of acute bronchitis and appeared to be only slightly indisposed, but refused all nourishment. This continued for a week, bronchitis improving, fever subsiding, patient apparently improving except in the matter of taking food. But mental and nervous symptoms began to appear in the clinical picture—slight drowsiness, and incoherent or irrational utterances, misdirected movements of arms and legs, and twitching of facial muscles. As days progressed, waves of convulsive movements and profound coma, which lasted for ten days, became more marked. At times, when there was response to treatment, mentality showed improvement, again to lapse into more profound delirium.

Urine examinations were made frequently, the following giving an insight into the clinical course of the malady:—

	1st Exam.	2nd Exam.	3rd Exam.
Color.....	Amber (clear).	Amber (clear)	Amber (clear)
Reaction	Acid.	Neutral.	Acid (faint).
Sp. Gr.	1024	1,020.	1,012.
Albumin	Trace	Trace.	Small amount.
Sugar	Present.	Present.	Present.
Acetone ...	Considerable	Considerable.	Present.
Indican	No excess.	Slight excess.	Slight excess.
Urobilinogen ..	Negative.	Positive.	Positive.
Diacetic acid.....	None.	Abundant.	Abundant.
Urates.....	No excess.	.....	.....
Bile	None.	None.	None.
Phosphate	Normal.	Normal.	Normal.
Chloride	Normal.	Normal.	Diminished.
Blood	None.	None.	None.
Pus corpuscle.	Occasional.	Occasional.	Occasional.
Mucus.....	Slight excess.	Excess.	Excess.
Casts	Hyaline.	Hyaline.	Hyaline.
Crystals	None.	None.	None.
Epithelium..	Insignificant.		

Case VI. *Malaria* — Malarial paroxysm every fourteen days for past 2 months: Blood showed aestivo-autumnal, intra cellular parasite and extra-cellular crescent form. Urobilinogen test + 2.

Case VII. *Indicanuria — Pseudo Angina Pectoris — Hepatitis.* — Urinary examination gave the following results:—Amber; clear; specific gravity, 1025; acid reaction; no albumin; sugar, 0; acetone, 0; urobilinogen, + 2; bile, 0; indican, considerable excess; phosphates, normal; chlorides, normal; urates, no excess; sediment, slight; blood, 0; pus, 0; mucus, no excess; crystals, 0; casts, 0; epithelium, insignificant.

Treatment for impaired liver function brought relief.

CONCLUSIONS.

I.—Urobilinogen in the urine denotes impaired liver function.

II.—A positive reaction may be expected in the following conditions of the liver:—

A—(Primary).

1. Cirrhosis.
2. Cancer.
3. Hepatitis (simple).
4. Cholecystitis and hepatitis.

B—(Secondary).

1. Diseases of the blood, as pernicious anemia, chlorosis, malaria, etc.
2. Acute infections, as pneumonia, influenza, acute articular rheumatism.
3. Cardiac and renal disease.
4. Renal, cardiac, hepatic disease.
5. Certain diseases involving liver, as diabetes.

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DIAGNOSTIC VALUE OF THE CYSTOSCOPE FROM THE STAND-POINT OF THE GENERAL PRACTITIONER.*

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Probably no instrument has been devised in the last half century that has been of more far-reaching importance than the cystoscope. Its invention by Nitze in 1879 marked a new epoch in the progress of genito-urinary surgery, and its use daily reveals pathological conditions that formerly were found only upon the autopsy table. The object of this paper is mainly to bring to the attention of the general practitioner the many uses of the cystoscope

as a diagnostic and therapeutic agent, the extent of which is rarely appreciated by the busy doctor, unless he be directly interested in this very interesting line of work. A simple examination of the interior of the bladder can be made by the average practitioner and a calculus, new growth, ulcer or mal-formation of the viscus detected. This information may be of great value in the institution of proper treatment at an early date; however, it is very doubtful if the busy practitioner would take the time or make examinations often enough to master the refinements of technique, and so become expert enough in handling the cystoscope as to render his deductions of any great scientific value.

In the diagnosis of cystitis, the cystoscope is generally not required; in fact, is contra-indicated in acute inflammatory conditions, but it is of value in determining a tubercular infection even before the specific germs are found in the urine. Ulcerations of the bladder can be determined with a certainty and local treatment carried directly to the diseased area when desired. Probably the greatest triumph of the cystoscope has been in the diagnosis of the hypertrophy of the median lobe of the prostate, and in conditions of median bar formation. Formerly those cases in which the vesical portion of the gland was involved could be diagnosed only within probability; however, the cystoscope, by bringing the protuberances directly before the examining eye, makes the diagnosis absolutely certain.

Previous to 1910 all tumors of the bladder were treated by one method, namely:—*Excision.*

Dr. Edwin Beer,¹ of New York, described a new method of treating papillomata of the bladder by the high frequency current, reporting two cases in which he obtained excellent results. Beer's observations have been confirmed by the report of cases by Keyes², and by Buerger, Wolborst, Bugbee and others. In a more detailed account in the *Annals of Surgery*, August, 1911, Beer has this to say:—"From all of the observations based on the application of the high frequency current in some 38 cases of papillary growths, it must be evident to the most skeptical that in this new method we have raised a mighty rival to the

*Read before the Tri-State Medical Society of the Carolinas and Virginia, at Norfolk, Va., February 19-21, 1913.

1. *Journal A. M. A.*, May 28, 1910.
2. *Amer. Jour. Surg.*, July, 1910.

older suprapubic and to the transperitoneal and operative cystoscopic methods. I believe it will supplant previous methods because of its greater simplicity and its great effectiveness." More recently this method has been applied with gratifying results in cases of nodular enlargements of the median lobe of the prostate where an extensive operation was not deemed advisable; also in the median bar formation. From my observation of this method, while scarcely being in use long enough to determine its end results, it certainly seems to have many practical advantages. It is relatively painless, there is no hemorrhage, the field of operation is directly under the eye of the operator, and we obtain sufficient destruction of tissue to relieve the patient of the distressing symptoms of prostatism. In two cases that have recently come under my care, one with a residual urine content of 500 c. c., and the other with 800 c. c., in a very short time the prostatism was relieved and there was virtually no residual urine.

Cystoscopy is by far the best means for locating a foreign body in the bladder, giving us exact information as to its location, size, etc., and makes its removal possible by the natural channels in a great many cases. If we have a haematuria to deal with, we can determine with great accuracy as to its source, and if it is coming from the ureter we can readily see whether it is coming from one or both sides. Likewise, if pus is seen oozing out of one ureter, which is by no means unusual, we can trace the source of the pyuria. To the trained eye the cystoscope will reveal many other abnormal conditions sometimes found in the bladder. Fistulae from different sources, extent of cancerous growths, stone in the ureter bulging into the lumen of the bladder, diverticula trabeculation, abnormal ureteral orifices, etc.

In diseases of the kidneys and ureters, the cystoscope has opened a channel of diagnosis and therapeutics far in advance of the fondest anticipation of its early advocates. We can all think back a few years to some case in our recollection where it was impossible to tell whether the kidney or bladder was the seat of the malady, and with all our primitive methods brought into play at one time, it was impossible to make a positive diagnosis. By enabling us to catheterize the ureters, cystoscopy has helped

us over these difficulties. By examining the secretion from each kidney separately, we are able to trace a pathological condition to its source, even in the earliest stages of a disease; we can say whether the condition is limited to one or both sides, and are likewise able to determine whether the other side is sufficiently active to support the vital functions.

Some very interesting work has been done recently to determine the functional activity of the kidneys, so that now it is possible to determine within reasonable limits the functioning power of one or both kidneys. It has been found that if the functioning capacity was below a given per cent, an operation would in all probability prove fatal; likewise, if one kidney was diseased, we are enabled to tell if the other is functionally active enough to sustain life or to permit of operative procedure. It is usually possible to catheterize the ureters with very little discomfort or injury to the patient. Where the ureters are plainly visible, this can be easily done, but ureteral catheterization has its limitation in that very frequently in chronic affections of the bladder, the ureters lie imbedded in folds of mucous membrane. The orifices may be distorted beyond recognition, or covered over by trabeculae. In these conditions catheterization is usually attended with great difficulty, and sometimes is impossible.

In conclusion. I wish to say just a few words as to the therapeutic value of cystoscopy. Unless we are able to make a correct diagnosis in a given case, there can be no correct therapy; as the cystoscope is the only certain method of diagnosis in a multitude of cases, its therapeutic value, though indirect, is manifestly very great. As previously stated, it plays a direct role in treatment, in that it enables us to apply the electric current directly to diseased areas of the bladder; it enables us to cure pyelitis by flushing the pelvis of the kidney, and in some cases by the injection of oil into the ureter, we are enabled occasionally to dislodge a stone that blocks the passage.

In making observations about the vesical neck, it is often wise to supplement the cystoscope by the cysto-urethroscope. With this instrument, we are able to make a close observation of the sphincteric region and to continue the observation throughout the urethra. Many interesting and important facts can be ascer-

tained by a study of the urethra, and by the use of no other instrument is it possible to so carefully examine it. We cannot over-estimate the importance of an examination of the urine from each of the kidneys, outlining the ureters, and a visual inspection of the bladder and urethra.

We receive positive data which can be obtained by no other means, which I think justifies the statement that the cystoscope is decidedly a practical instrument for the practitioner, and its more general use will do much towards making genito-urinary surgery a more exact science.

121 *South Elm Street.*

NEW DRUGS OF THE LAST YEAR OR TWO.

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The number of new drugs brought to the attention of the medical profession during the past two years has been considerably less than in the preceding biennium. This is probably due not so much to any falling off in the capacity of the chemist to manufacture new compounds, as to the increasing skepticism of physicians towards new synthetic compounds.

Whereas previously the physician was somewhat inclined to rate a new drug on the basis of the manufacturers' claims, he has been taught by experience and study to discount these claims until the remedy has been given a more extended and unbiased trial in the clinic.

As a matter of fact most so-called new drugs are only new in a special and limited sense. If we should designate as a new drug only those compounds which represent true novelties of chemical composition the number of drugs entitled to the designation would be small indeed in any one or in any ten years. The majority of new drugs represent modifications and combinations of older substances in the vast majority of instances.

Of the recent modifications of opium and its alkaloids we may mention pantopon, a hydrochloric acid solution of all the opium alkaloids; narkophin, a mixture of the meconates of morphine and narcotin. Narkophin contains about 30 per cent morphine. Laudanon, a new preparation of this class, contains 1 per cent

morphine and small amounts of thebaine, narcotin, codeine, papaverin and narcein.

Veronal which is an acid (diethylbarbituric), has been combined with several alkaloidal bases, notably codeine and quinine, forming two new preparations known as codeonal and chineonal. Codeonal contains about 12 per cent of codeine diethylbarbiturate and has been recommended from some reliable quarters as a safe and satisfactory hypnotic. It does not seem so satisfactory in insomnia due to pain and, therefore, it has been suggested (Biberfeld) that a combination of veronal and morphine, that is a chemical combination, would serve a useful purpose in this direction.

Chineonal is said to be quite free from intolerant effects and has been recommended in whooping cough.

A new relative of veronal has appeared recently in the form of luminal, which is a substitution product of veronal in which one ethyl group is replaced by phenyl, the hypnotic effect being thereby increased,—perhaps, also, unfortunately, the toxic effect. The beginning dose is 3 grains.

Aleudrin is a recently added hypnotic closely related to isopral. Chemically it is the carbamic acid ester of di-chlor-iso-propyl alcohol. The physician will carefully note that it is a bromine bearing methane compound, and wherever this is the case (chlorine also) he must expect the compound to possess some tendency toward depression of the circulation. The dose of aleudrin is 15 grains.

Several new bromine preparations have appeared recently, chief of these being zebromal and adamon. The first is di-brom-benzoic acid ethyl ester and contains 48 per cent of bromine. It is recommended in epilepsy. The second is di-brom-di-hydro benzoic acid borneol ester, and contains 35 per cent bromine and about as much borneol (camphor). It is recommended as a sedative in tachycardia and irritable conditions of the nervous system generally, but especially sexual.

Among the new fever drugs and anti-neuralgics are to be mentioned especially ervasin and novatophan. Ervasin is related to antipyrin but has not been proved superior. Novatophan is the ethyl ester of the older drug atophan and is not disagreeable to take.

New drugs of the disinfectant and antiseptic

series are as usual represented by a comparatively large number.

Mallebrein is a 25 per cent solution of aluminium chloride and is used as a gargle. It is supposed to split off oxygen and chlorine.

Phobral and grotan are new kresol compounds. Noviform is a new dusting powder. It is an organic bismuth compound.

Amphotropin is a new genito urinary anti-septic consisting of a compound of camphoric acid and hexamethylenamin.

Choleval is a mixture of colloidal silver and sodium choleinate.

Colloidal selenium has recently been introduced for the treatment of inoperable cancer and some favorable reports have come from reliable sources.

Colloidal rhodium (rhodium is a rare metal belonging to platinum series) has been recently introduced as an internal antiseptic in the treatment of various infections. It is given intramuscularly like many colloidal metallic solutions are given.

Pellidol is a new substitution product of scarlet red or amido-azo-toluol. Pellidol is diacetyl scarlet red.

Azodolen is a mixture of pellidol and iodolen. Both these new compounds are recommended in the treatment of chronic ulcers and slowly cicatrizing wounds generally.

Of new inorganic combinations, there are a few new compounds of calcium and sodium, also of rhodium. Calcium compounds are still used in a variety of hemorrhagic diseases and in certain eczemas. Sano-calcin is a mixture of a simple combination of calcium glycerinolactophosphate.

Sodium rhodanate has been recommended in the treatment of tabetic pains, migraine, arteriosclerotic complications, and sympathetic neuroses.

The internal administration of salts of rhodium is recommended by some dentists in the treatment of recurring caries.

Rhodalzed is a proteid combination of rhodium. Rhodium salts are given internally in doses of 5 to 15 grains a day.

Mesbe is a new drug which has appeared frequently in the literature of the past year for the treatment of tuberculosis. It has not managed to claim the amount of attention accorded the turtle serum, but seems destined to be even

more quickly forgotten. Mesbe is an extract of an American plant of the genus malvaceae.

Sennatin is a new preparation from senna leaves—to be used hypodermically.

Digifolin is a new saponin free digitalis preparation which is said not to irritate the stomach. It remains to be seen whether this claim will be substantiated.

The most notable new preparation, however, of recent months seems to be neo-salvarsan. This is a combination of the older salvarsan with formaldehyde sulphonylic acid sodium. It is easily soluble in water, with neutral reaction, and is especially suited, therefore, to hypodermic, or rather intramuscular, injection. The substance when dissolved is readily decomposable, and consequently must be immediately injected after its solution has been effected.

1730 Connecticut Avenue.

THE CARE OF THE WOMAN DURING HER THIRTY-NINE WEEKS OF GESTATION.*

By GREER BAUGHMAN, M. D., Richmond, Va.

Professor of Histology, Bacteriology and Pathology, Medical College of Virginia; Pathologist to the Memorial Hospital; Member of the Southern Surgical and Gynecological Association, etc.

It is important that the accoucheur keep abreast of the times during this renaissance of surgery and medicine. There is too great a tendency to assume that as pregnancy and labor are normal physiological processes, nature should be allowed to take her course without any solicitation on the part of the doctor. We must recollect that living in this age of unnatural straining after money, fame and social position, the whole people are abnormal, and particularly is this true of the weaker physically—woman.

Even though the opportunities for better living pertain here in America, we must remember that many of the inhabitants of this country are only a few generations removed from European ancestors, that have lived crowded together with poor food, often in factory towns where narrow pelvis and delayed menstruation are the rules.

Then, again, our women come of a race of corset wearers, and until very recent times the corset was made without regard for anatomy,

*Read before the Guilford County Medical Society of North Carolina, October 3, 1912.

The consequence has been that every fifth of our women suffer from visceroptosis more or less. My own statistics show that 9.97 per cent of the women that I examine for any reason have visceroptosis. Not that the corset is the only or the most important cause of visceroptosis, but still it helps in its formation and it helps in the distortion of the pelvis both by direct pressure and by changing the center of gravity.

The great variety of nations that go to make up our country tend towards dystocia. The rawboned husky Swede marries a small built French woman, or the man of the working class coming of a generation of hard workers with big lusty babies makes his way in the world and mates with a dainty aristocrat whose ancestors have done but little physical work, and the result may be disastrous so far as the off-spring is concerned.

So we see that although there are certain things here in America that tend towards developing normal labor, there are other facts that seem to predispose towards dystocia.

One of the things that interferes with the more careful looking after the prospective mother is an inherent modesty that develops in her after impregnation. She possesses this in common with many of the lower orders of life. William Morton Wheeler in an article in the *National Geographic Magazine* of August, 1912 on *Notes about Ants and their Resemblance to Man*, says "After mating with the male high in the air, the queen descends to earth and loses her wings, either by breaking them off at the base against the stones or blades of grass or by tearing them away with her mandibles, for they are to be of no further use to her. She then seeks some small cavity under a stone or piece of bark, or digs on in the ground, and closes it after her, so that she is completely cut off from the world."

The care of the parturient woman may be grouped for study under the following heads: 1—To find out the exact date of her expected labor. 2—To keep her body functions in such condition that both she and the baby will benefit by the pregnancy. 3—To see that she gets the things that she will need to make her delivery safe and comfortable. 4—To know beforehand what sort of labor she is liable to

have and to interfere with the pregnancy if it is found necessary.

Spiegelberg reports Lowenhardt's estimation of the exact length of pregnancy, from conception to delivery, as 272 days, the larger number occurring in the thirty-ninth week rather than in the fortieth week. The same author has found that the length of time from the first day of menstruation to delivery is 282 days, while if the counting is done from the last day of menstruation 278 is the average. That the duration of the parturient period varies with different individuals and even in the same woman at different pregnancies has been observed by all; consequently, the estimation of the date of delivery from the menstruation is most uncertain. In order to come as near as possible to the date of delivery I have adopted the plan of calculating 272 days forward from the last day of menstruation, taking note of the number of days in the various months through which the pregnancy will continue. In addition to this, I warn the expecting mother of the date when she is liable to feel the first movement, expecting it to occur at the end of four and a half months in primipara and at the end of four months in multipara. In order that the woman will not forget, I have had made a set of instructions to pregnant women that among other things has a place for writing in this date of expected first movement. My set of instructions has also a space for writing in the time when I wish to make an external examination of the abdomen. I make this examination, as near as I can when the woman has completed her sixth month of pregnancy. At that time the uterus should be almost at the navel. This examination will depend, however, upon whether the intestinal track is empty or not and whether the woman is standing or in the recumbent position. I examine her lying down after she has had her bowels moved.

If the date obtained from the menstruation, and the time of the first foetal movements seem to point to the same date as the external examination of the abdomen would indicate, then I feel right comfortable about the date for the termination of the pregnancy. I must confess, however, that with all the care possible, the date I estimate and the date that nature seems to select are not always the same.

Professor Paul Bar of Paris has recently

given us some very interesting and scientific information on the physiology of pregnancy. He endeavored to determine the modification in the nutrition of the healthy woman, produced by a normal pregnancy, employing for that purpose the study of the urine. He found that upon a rational regime the healthy pregnant woman retained more nitrogen than one not pregnant; that the retained proteids were more than enough for the foetus; so that, as far as nitrogen is concerned, the pregnant woman is at an advantage over her virgin sister. He states that the foetus is not a parasite, but there is a harmonious homogeneous symbiosis between foetus and mother. Bar found that the weight of urinary ammonia appeared to increase during pregnancy, and the relation of the nitrogen of the ammonia to the total nitrogen was above the normal. He found that the material organism was able to store up phosphorus. He found that as the foetus draws its iron from the mother's blood, the haematopoietic organs, such as the liver and spleen, were sometimes somewhat over-worked. A pathological cycle was met with: there was first the foetal demand for iron, followed by excessive haematolysis and its results, polycholia, the simultaneous loss of iron and sulphur by the intestines, and, finally, cholemia.

The only substance that seemed to be lost in excess of gain is lime.

Under ordinary circumstances, the time of pregnancy is a real gain to the health of the mother. My own observations have shown me that there are two classes of women that are markedly in contrast during pregnancy. Much the larger class increase in weight, have bright sparkling eyes and have a particularly good appetite, while a few look thin and show signs of failing health. This latter class require iron, lime salts, and a very careful looking after the urine. With these women I make frequent analyses of twenty-four hour urine, looking for the total ammonia, urea, and indican particularly.

It is not the purpose of this paper to discuss the toxemia of pregnancy or the other conditions that may arise to render the case serious, but rather to direct the attention to certain things which, if observed, will help to make the pregnancy safer.

Seeing the woman herself and observing the

way she is caring for herself, along with the frequent urinary examinations for the easier found things, such as albumen, sugar, indican, casts, and, if the occasion comes, a twenty-four hour sample examined for ammonia and urea, are to my mind of the most service. Along the line of urinary examinations, it might be well to mention the well-known fact that sugar is found as glucose or lactose, according to Bar, in 10 per cent of primipara and 30 per cent of multipara. As a rule, it has no particular significance except to indicate a foetal glyco-genesis and the development of fat in the foetus.

As a matter of convenience to the women and to myself, I give each pregnant woman a printed form that has a space for the writing of her expected delivery date, when she should feel movement, when she should report for abdominal examination and pelvic measurement. This also tells her of certain things that she should look out for, such as swelling of the limbs, hemorrhage, etc. Then there is a list of things that she will need at the time of delivery and during her parturient period. Her dressings I have sterilized for her.

I am very particular about abdominal and breast massage during her parturient period. Not only does abdominal massage make her more comfortable, but the relief to the stretched muscles will be appreciated later when, after labor, the muscles more quickly regain their tone and help to prevent visceroptosis. The hardening of the nipples with alcohol, hamamelis and alum has, in my experience, been of right much help in preventing cracked and fissured nipples. Besides, it is helpful for the women early in pregnancy to have respect for and have their attention drawn to the two things that in my opinion are the most important to the child bearing mother—the breasts and the abdominal muscles. Good breasts develop strong, healthy children that are not so subject to infectious diseases. Good belly muscles make straight backed, handsome women, without constipation or backache. Attention to frequently over-looked details will tend to make the difference between misery and happiness in mother and baby.

It is possible to know beforehand many of the troubles that the pregnant woman is liable to have. If she is multipara, the history of her first labor is liable to be repeated, though

this is not necessarily the case. As an example of marked difference in labors of the same woman, I will report the following case: Mrs. H. J. M., whose pelvic measurements were 23-29-32-20 centimetres, was delivered of her first child in three hours from the time of first pain. The child was a girl in first vertex position, weight, 9 pounds. Her second labor lasted twenty-five hours, when she gave birth to a 5 3-4 pound boy in the second vertex position. Her third labor was ten hours, when she gave birth to a 9 pound boy in first vertex position. Her pains seemed to me equally severe in each delivery.

In explanation of the pelvic measurements, I wish to say that I use Leopold's plan. All of the measurements are in centimetres. The first figure is the distance between the tops of the anterior superior spines of the ilium: I try, as far as possible, to measure from the inside of the bone. The second figure is from the crest of the ilium, measured from the inside of the top of the bone just as the first was made. The third figure is the bitrochanteric measurement. The last and most important is the distance from the symphysis to the depression underneath the last lumbar vertebra.

These measurements will be slightly smaller, because of the method of taking them, than those obtained by the average observer. The idea in taking the measurements from the inside of the bones is to get the exact size of the inside of the pelvis.

I do not make a vaginal examination of my cases except where it is absolutely necessary; hence, I have very few records of the internal distance from the promontory to the symphysis.

When we come to the actual delivery, we will find that it is not the measurements of the pelvis, nor yet the size of the child that makes delivery difficult, but it is the narrowing of the pelvis, the position of the child, and, most of all, the ability of the part presenting to shape and conform itself to the pelvis. But, still, in preparing oneself for the delivery, the only things we have to help to determine the outcome are the past performances of the woman, her apparent strength and desire to do her part and the size of the pelvis.

In order to help throw some light on these points, I have gotten together statistics on my last one hundred and twelve cases. These cases were all in private practice. Of the number,

there were fourteen instrumental deliveries (I include versions under instrumental deliveries.) The instrumental deliveries were 12.5 per cent of the total number.

The pelvic measurements of the whole series averaged 21.1—26.—31.45—19. centimetres.

The pelvic measurements of those delivering themselves were 22.3—26.6—31.7—19.3 centimetres.

The pelvic measurements of those delivered with forceps averaged 20.9—25.5—31.2—18.8 centimetres.

The pelvic measurements of those delivered with forceps because of the inability of the head to conform to the shape of the pelvis were 21.7—25.4—31.2—18.6 centimetres.

In the last class the average child was 8 pounds in weight. The smallest child was 7 3-4 pounds; the largest, 9 1-2 pounds in weight.

It is not the purpose of this paper to enter into the different varieties of contracted pelvis and their significance, but rather to call attention again to the fact that by careful measurements of the pelvis while there is yet time, we are in a position to know that trouble is lying in wait for our case, and we will be able to induce labor, or send her to the hospital where she will have a better chance.

My rule in the cases that show a contracted pelvis below 19 antero-posterior diameter, particularly if it is a rachitic pelvis, is to warn them that we are expecting trouble and that the best place for them is the hospital. I find but little difficulty in persuading them to adapt this course.

A little observation and care of the woman during her thirty-nine weeks of gestation will result in saving most mothers and babies.

26 North Laurel Street.

Proceedings of Societies, Etc.

MEDICAL AND SURGICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

Reported by LEWIS C. ECKER, M. D.

This Society met February 6, 1913, Dr. Hickling presiding. Under the heading of

Presentation of Pathological Specimens,

Dr. Hagner referred to a case that he had of ureteral stone in which, during use of the

ureteral forceps, one of the forcep blades broke off in the bladder. He thought he would be able to remove this with forceps. Showed how diagnosis of ureteral stone can be made with the wax tip catheter.

Dr. Copeland mentioned an instance in which there was the separation of an oesophageal bougie, but he was able to catch the lower end with forceps.

Dr. Hazen reported a case of chancre of the tonsil. Relief 6 hours after salvarsan.

He also reported a case of anaphylaxis. Following the eating of some oysters, a general urticaria and erythema multiformia appeared in 3 hours. On vaccinating the patient with an emulsion of oysters the same condition was reproduced in about 3 hours.

Dr. Gwynn reported a case of appendicitis.

Dr. Reichelderfer congratulated *Dr. Gwynn* on his result, and the ingenuity in closing the caecum.

Dr. Reichelderfer read the paper of the evening on

Tuberculosis of the Lymphatics.*

Dr. Gwynn opened the discussion. He had good results with the vaccine treatment. Also following simple tonsillectomy.

Dr. Copeland said that in 100% of definite cases of tuberculosis the bacilli were found in the blood; 70% in doubtful cases; 10 to 15% in unsuspected cases. Much better to carry out the general symptomatic treatment.

Dr. Reisinger said extirpation had proven very satisfactory in his experience. He usually starts with the application of oleate of mercury.

Dr. Hagner saw a case of tubercular involvement in axillary glands following tattooing, the ink being moistened in the saliva of a tuberculous individual. The glands were also stained with the ink.

Dr. E. L. Morgan said Indians showed improvement when allowed to run wild. He was in the habit of treating the sinuses with carbolic.

Dr. Bishop spoke of the Ionic treatment, and zinc and mercury cataphoresis. He referred also to the results with the X-ray, especially after the use of the high frequency current.

Dr. McKimmie said a remnant of the adenoid gland which may have had an infected

crypt (Farnwell's disease) might be a source of infection. Presence of neck glands indicates the necessity of tonsillectomy. Where the gland is near the skin and has a thin capsule it is better to cut outside the prominent portion of the gland.

Dr. Fuller reported a case of unilateral tubercular tonsil with subsidence after the removal of the tonsil.

Dr. Kerr said treatment depends upon the patient and conditions. It is often possible to get results with symptomatic treatment. In advanced cases a radical operation is indicated—to remove the entire chain of glands. Good results have followed the aspiration and injection of formalin and glycerin.

Dr. Reichelderfer closed the discussion.

FLOYD COUNTY MEDICAL SOCIETY.

Reported by M. L. DALTON, M. D.

This Society met June 10th, 1913. In the absence of the President, *Dr. J. W. Thurman*, of Pizarro, *Dr. R. T. Akers*, of Alum Ridge, Va., was called to the chair. A business session was held, and routine business transacted, no papers being read at this session. The prevailing diseases were discussed and treatments suggested. On motion *Dr. Akers* was given an unanimous vote of thanks for the able manner in which he presided and his unbiased rulings. The Society then adjourned to meet November 11, 1913, at which time the election of officers will be held.

Correspondence.

OF INTEREST TO VIRGINIA DOCTORS.

To the Doctors of Virginia:

Your earnest attention to this communication is very important, so please read it through, and understand that what is said is meant for each doctor individually. We mean you.

The Legislative Committee of the Medical Society of Virginia is beginning the coming campaign to secure the repeal of the special license tax on physicians by the General Assembly of 1914. It is necessary that we begin our work of educating prospective legislators as to the merit of our case *at once*—before the primaries.

*For paper, see page 133.

The committee is facing a hard task, with only about \$165 in sight with which to pay the expenses of a state-wide campaign of education. We therefore appeal to each and every physician to see or write to every candidate for the legislature in his particular county as early as possible, and present our case, and if possible, ascertain his position with reference thereto.

We appeal also to every local medical society in the State to act as an organization and exert every legitimate influence with the candidates in their territory.

We further request that all information obtained be promptly transmitted by letter to the Chairman of the Legislative Committee of the Medical Society of Virginia in order that he may keep in touch with the situation in every county in the State and keep a record of the stand taken by the various candidates.

We respectfully call your attention to the fact that it is impossible for our Committee to do this work, except through the local members of the profession, and we hope you will see the great necessity for doing your part.

Allow us to suggest, that the strength of our position lies in the fact that the medical profession constitutes the most important part of the State Department of Health. The profession is, as it were, a field agent of the Department, the man on the ground, and the State must have his co-operation if she is to succeed in stamping out communicable diseases.

We are required to report these diseases and use every means to prevent their spread. We are also required—without compensation—to report all births and deaths occurring in our practice. These facts are ample proof of the injustice and inexpediency of the license tax, and should appeal to every open-minded man.

We urge you to present these arguments in season and out of season, and report the result to us.

If any one desires to help the Committee in a material way, their contributions will be gladly received. Any assistance given the Committee will be appreciated.

GEO. A. STOVER, M. D., *Chairman*,
Legislative Committee, Med. Soc. Va.,
South Boston, Va.

Editorial.

Typhus Fever and Brill's Disease.

The United States Hygienic Laboratory has recently collected a series of important articles written by officers in the U. S. Public Health Service upon the subject of typhus fever in America,—*Collected Studies on Typhus Fever*, Hygienic Laboratory, Bulletin 86, October, 1912.

In the collected articles, Dr. John F. Anderson and Dr. Goldberger present the results of their studies upon the typhus fever of Mexico ("tabardillo") and upon Brill's disease. In the course of these experiments, Dr. Goldberger contracted typhus fever and survived the attack.

The authors succeeded in transmitting this disease to monkeys and in transmitting it from one monkey to another. They found that the disease is conveyed by means of insects and gained definite results with the body louse and head louse, but they could not transmit the disease with any other insects which attack human beings. The distribution of typhus in Mexico exactly fits in with these findings. They could convey the disease by direct inoculation of blood of the diseased person to a monkey between the fifth and eighth days of the disease. After a monkey had recovered from an infection, it was immune to subsequent exposure.

Dr. Nathan E. Brill called attention to the existence of a peculiar, acute, infectious disease occurring in New York City. His disease resembles mild typhus fever. Anderson and Goldberger succeeded in transmitting Brill's disease to monkeys by inoculating them with blood from patients. The monkeys went through an attack apparently identical with that experienced my monkeys inoculated with typhus fever of Mexico.

They then attempted to compare the Mexican typhus fever with Brill's disease and made the interesting observation that monkeys which had recovered from Brill's disease were immune to typhus fever and that those which had recovered from typhus fever were immune to Brill's disease. They consider that this result proves the identity of the disease in Mexico with Brill's disease. Inasmuch as the New

York disease, judging from its distribution, was introduced from Europe, they conclude that the so-called Brill's disease is really the same thing as the typhus fever of Europe.

The virus of the disease has not been grown nor definitely identified. It is present in the plasma of the blood after removing the corpuscles and apparently can be thrown down by prolonged centrifugation. It is not present in blood passed through a bacterial filter, although the evidence on this point is not absolutely clear cut. When infected body lice were crushed and the material obtained passed through a bacterial filter, the filtrate immunized a monkey without infecting it. There was a slight degree of protective power in the serum of monkeys which had recovered from the disease, susceptible monkeys being protected by receiving doses of the immune serum. They did not succeed in perfecting a method of vaccination against the disease.

In the monkeys inoculated, the incubation period averaged between six and ten days, with extremes of five to twenty-four days. Four monkeys out of one hundred and three died of the disease. They could not secure protection against the disease except in those animals which gave a definite febrile reaction upon preliminary treatment. They succeeded in transmitting the disease to guinea-pigs and to rabbits under certain conditions.

The importance of this work to the general practitioner is great. It indicates that hereafter the practitioner must be prepared to recognize typhus fever as there seems to be little doubt that the disease will not remain localized in New York City. It will be well, then, to become familiar with the main features of typhus: sudden onset, macular eruption, severe toxemia and prostration, continuous fever ending within about two weeks by crisis.

H. T. M.

Typhoid Control and Municipal Government.

The present situation in Richmond in regard to typhoid fever offers points of interest to physicians and students of municipal government. Richmond has been exceedingly fortunate in possessing one of the best municipal health officers in the country and has enjoyed a typhoid death rate far below that of most southern cities. This spring, however, the num-

ber of typhoid cases increased so markedly that the Health Officer, after a careful study of the evidence, requested the aid of the Epidemiologist of the State Health Department. The two agreed that the evidence pointed to an infection of the city water supply and Dr. Levy recommended to the water department that a plant for the sterilization of the water with hypochlorite of lime be installed immediately.

Richmond is also blessed, as our readers will recall, with an Administrative Board created for the prompt dispatch of the city's business affairs, to which Board came the recommendations of the Health Officer. At this point the question ceased to be one of sanitation and became one of political and official argumentation. The Board, without hearing from the Health Officer, unanimously refused to heed his recommendations, and in effect, turned the whole matter over to the City Chemist, who is not and does not claim to be a skilled sanitarian. The Health Officer, instead of being the natural expert adviser of the Board in a highly technical question, was apparently regarded as an outsider endeavoring to blast the fair name of the city. His conclusions and recommendations were attacked and questioned by men about as competent to pass on the intricate scientific questions involved as they would be to determine the horizontal parallax of Mars.

Meanwhile the Academy of Medicine and Surgery has endorsed the recommendations of the Health Officer, the State Board of Health has made the same recommendations to the Administrative Board and the newspapers are vigorously supporting the Health Officer. The final decision of the matter,—unless the State Board should invoke its emergency powers and take over the authority of city government in the matter,—rests with the Administrative Board. The latter seems unwilling to trust expert opinion as opposed to the "common sense" opinions of the superintendent of the water works, who is neither a sanitarian nor an engineer, and of the city engineer, who can certainly not qualify in the capacity of a sanitary expert.

The fact that sanitary matters should be intrusted to sanitarians has long been familiar to us all, but Richmond's experience teaches strongly the further lesson that the absolute and final control of its most important sanitary factor, the water supply, should be under the

supervision of expert sanitarians as well as engineers. The lesson, at the cost of fifty or more cases of typhoid, is expensive, but if its result is to absolutely safeguard the city's water it will be worth even that.

University of Virginia, Medical Department.

The commencement exercises of the Medical Department, as usual, were held in connection with those of the other departments of the University, June 15-18. Each member of the graduating class received a hospital appointment, the names of the hospitals and appointees being as follows:—

University of Virginia Hospital.—Drs. Percy E. Duggins, Grenada, Miss.; Chas. M. O'Connor, Jr., Charlottesville, Va.; John Porter Jones, Raccoon Ford, Va.

Hudson Street Hospital, New York.—Dr. Mercer Blanchard, Columbus, Ga.

St. Vincent's Hospital, Norfolk.—Dr. Peyton M. Chichester, Fredericksburg, Va.

Texarkana Hospital.—Dr. Robt. Rodney Dale, Texarkana, Ark.

Post-Graduate Hospital, New York.—Dr. Herbert Rogers Etheridge, Norfolk, Va.

City Hospital, East Orange, N. J.—Dr. William S. Guyton, Ingomar, Miss.

Providence Hospital, Washington.—Dr. Richard L. Kendrick, Rock Hill, S. C.

U. S. Marine Hospital, Baltimore. Dr. Louis L. Williams, Jr. Boston, Mass.

St. Luke's Hospital, New York.—Drs. Carrington Williams, Richmond, Va.; Kyle B. Steele, Charlottesville, Va.

U. S. Marine Hospital, Blackwells Island, N. Y.—Dr. Henry C. Yarbrough, Montgomery, Ala.

U. S. Marine Hospital, Wilmington, N. C.—Dr. Geo. Alex. Wheeler, Higgins, N. C.

Recent Changes in Virginia of Medical Officers of U. S. Army.

First Lieut. Charles C. Hillman relieved from duty at Army Medical School, Washington, and reported for duty at Ft. Myer, Va., June 11.

First Lieut. William W. Vaughan arrived at Ft. Myer, Va., June 14, for duty.

Capt. John S. Lambie, Jr., relieved from duty at Ft. Myer, Va., to take effect at such time as will enable him to proceed to Ft. William H. Seward, Alaska, sailing from Seattle, Wash., about July 10, for duty.

Major J. S. Wilson and J. M. Pratt, M. R. C., left Ft. Ethan Allen, Vt., June 16, with 10th Cavalry, and Capt. D. C. Harmon and Lieut. R. H. Duenner left Ft. Oglethorpe, Ga., on the same date with 11th Cavalry, en route to Winchester, Va.

Lieut. J. D. Whitham returned to Ft. Monroe June 19, from temporary duty at Ft. Howard.

Open Window Classes.

A Medical Inspector of the Philadelphia Public Schools, with the cooperation of the parents and teachers, recently made an experiment to determine the value of cold air in the school room. The windows were kept open at the top and bottom the entire winter, the children wore extra wraps and had frequent exercises, and all heat was shut off from the room except when the temperature fell below 45°. Another room, in which were equally normal and healthy children, was heated and ventilated according to the usual methods. From records kept each week, the children in the open-window room were found to have gained more in weight, to have kept in better health, and to be more alert with their lessons. As a result of the success of this experiment, the school board has authorized the establishment of open-window classes in several Philadelphia schools.

Dr. Horsley Receives High Honor From A. M. A.

Dr. J. Shelton Horsley, of this city, received a certificate of honor from the American Medical Association, during its Minneapolis meeting, in recognition of his original research work and experiments in transplanting blood vessels and intestines. His work was shown at the scientific exhibition held in connection with the meeting.

President-Elect of A. M. A.

Dr. Victor C. Vaughan, dean of the Medical School of the University of Michigan, at Ann Arbor, was elected president-elect of the American Medical Association at Minneapolis, this month, and Atlantic City was selected for the 1914 meeting.

Attention—Doctors!

We wish to call the especial attention of every Virginia doctor to the *Correspondence* by Dr. George A. Stover, which appears on page

152, of the present issue of the *Semi-Monthly*. It touches a matter which should be of interest to all doctors in this State, and we ask your careful perusal of it, feeling sure each one will do what is expected of him afterwards.

Dr. P. B. Barringer Honored.

At the closing exercises of the V. P. I., at Blacksburg, June 18th, the faculty presented Dr. Barringer, the retiring president, with a silver loving cup in recognition of his services to that institution, 1907-1913.

Frank R. Eldred,

Director of the Scientific Division of Eli Lilly & Co., received the degree of Doctor of Pharmacy from the Medico-Chirurgical College of Philadelphia, at the June commencement. Mr. Eldred is well known in pharmaceutical and chemical circles by reason of his investigations which have been published from time to time by the pharmaceutical and chemical press.

The Southside Virginia Medical Association

Held its quarterly meeting at Petersburg, June 10, Dr. Bernard Barrow, Barrow's Store, presiding. In addition to a number of other papers there was a symposium on malaria, on which subject several papers were read and freely discussed. Following the afternoon session, Dr. J. Bolling Jones entertained the members and visitors. The evening session was combined with that of the Petersburg Faculty, upon the adjournment of which, the Association enjoyed a banquet.

Dr. Tom A. Williams,

Of Washington, D. C., expects to spend the summer in England, and will read papers at the International Congress of Medicine and before the British Medical Association. During his stay in London, he will stop at the Royal Societies' Club, in St. James Street.

Dr. Chas. M. Hazen.

Richmond, Va., has removed to Professional Building, at 114 North Fifth Street.

Transactions of the Medical Society of Virginia

Have been issued, and all members who have not received copies should notify the secretary, Dr. Paulus A. Irving, Farmville, at once.

Dr. M. L. Dalton

Has broken ground on North Locust Street, Floyd, Va., for a large and commodious office building, above which will be rooms to be used as a Sanitorium for his private patients.

The West Virginia State Medical Association,

At its annual meeting held in Charleston the last of May, elected Dr. R. E. Venning, Charlestown, president; Drs. Chas. M. Scott, Bluefield, Frank B. Murphy, Philippi, and James E. Cooper, Cameron, vice-presidents; Dr. A. P. Butt. Davis, (re-elected) secretary, and Dr. H. G. Nicholson (also re-elected), treasurer. The next meeting will be held in Bluefield, in May, 1914.

Dr. James L. Kent

Announces the removal of his office from Lynchburg to Pulaski, Va., and that his practice is limited to diseases of the eye, ear, nose and throat.

Dr. J. A. Noblin

Has been chosen physician for the new State Normal School for girls which will be opened at Radford in September next.

Dr. Lawrence T. Price.

Of this city, has resigned as a member of the Richmond School Board, owing to his work as major of a battalion of the First Virginia Regiment in connection with professional duties.

Dr. Thomas W. Murrell.

Richmond, Va., left for Europe the middle of June. While abroad, he will visit hospitals and attend clinics in Edinburgh, London, France, and possibly Germany, returning to this country about the last of July.

Attended A. M. A.

Dr. C. C. Haskell, Director of the Department of Experimental Medicine, Dr. Severance Burrage, Director of the Biological Department and Dr. C. S. Woods, Medical Counsel, all of Eli Lilly & Co., attended the meeting of the American Medical Association at Minneapolis during the week of June 16th.

The Social Hygiene Conference

Will be held in Seattle, Wash., July 7 and 8, in connection with the National Conference of Charities and Corrections, dates for which are July 5-12.

Dr. J. G. Loving,

South Richmond, coroner of Chesterfield County, who was slightly bruised by a fall from his automobile on June 18th, has fully recovered and is at work again.

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BLOOD PRESSURE AS IT CONCERNS THE GENERAL PRACTITIONER.*

By LOUIS G. BEALL, M. D., Greensboro, N. C.

At the outset, let it be understood that I do not claim any originality for the subject matter of this paper. I have borrowed freely from various sources and especially from some data sent me by Dr. Janeway. However, it is with the hope that I may arouse the interest of the members of this Society and bring about a healthy discussion that I have chosen this important subject.

From the earliest time the pulse has been taken as one of the most important diagnostic indications of disease. With the perfection of scientific instruments for measuring the pulse pressure, the study of the causes of variations in pressure, the effect of these variations upon health and the length of life, and the treatment needed, have commanded the attention of some of our most astute clinicians.

Normal pulse pressure depends upon the force with which the heart contracts, the resistance met with in the peripheral vessels, the elasticity of the arterial wall, and, to a less extent, upon the total quantity of blood in the body and upon its viscosity.

A definite amount of pressure is needed to overcome the normal vaso-motor tone. This pressure is designated by Janeway to be the "essential pressure" and is about 50 mm. of mercury. In addition, there is a pressure of from 70 to 90 mm. which is dependent upon various mental, physical and physiological factors.

From the study of a large number of readings upon applicants for insurance and other normal individuals, it has been found that the normal systolic pressure for an adult male varies between 120 and 140 mm. of mercury. Janeway also makes the statement that the range between 145 and 160 mm. is debatable ground, while a constant pressure above 160 mm. is abnormal.

It is with the variations from these limits that the general practitioner is concerned, especially those above the normal limit and it is to these conditions that I would direct his attention.

The examination of each patient is for the purpose of diagnosis. Hence, every convenient means should be used which will give us any accurate, definite information. Therefore, the general practitioner should always carefully examine every new patient, making the blood pressure reading part of his daily routine.

The finding of a heart lesion, which has been wholly unsuspected before examination, is an almost daily occurrence for some of us. In the same way, a high blood pressure is frequently discovered in an apparently normal individual. Without a blood pressure reading, an experienced clinician would perhaps detect the accentuated second aortic sound and could determine a cardiac hypertrophy, sometimes the only evidence, besides a hypertension, of chronic nephritis. But we all know how difficult these signs are to elicit in an emphysematous chest, or in one covered with a generous layer of adipose tissue.

The importance of the blood pressure reading in cases of this kind is shown by a study of the hundred cases reported by Janeway. All of these cases had a blood pressure reading of 170 mm. and above, and in 79 per cent nephritis was the clinical diagnosis. This fact, in connection with rapid increase in mortality from

*Read before the Medical Society of North Carolina, at Morehead City, N. C., June 17-19, 1913.

kidney disease shown in this country during the past 50 years, gives us food for serious thought. In the New England States this mortality is ten times higher than at the beginning of the Civil War, and this increase has been universal throughout the country, reaching its high watermark in New York City.

In the study of the early symptoms shown in Janeway's cases we find that 48 had dyspnea upon exertion, 32 had polyuria, 24 had paroxysmal dyspnea, 16 had neurasthenic symptoms, 15 had anginoid pain, 15 suffered from headache and 14 had loss of flesh. Any one of these symptoms, therefore, calls for the use of the sphygmomanometer.

In drawing any conclusion from a high pressure reading, one must eliminate all temporary influences tending to raise blood pressure, perhaps the most important of which are excitement and apprehension on the part of the patient. Therefore, a second reading upon a subsequent day should always be taken, unless the pressure is above 180 mm. of mercury.

A high blood pressure reading in a vast majority of cases is due to chronic nephritis, although the urine may be free from albumin for years and the patients present only cardiovascular symptoms or symptoms of neurasthenia. The more rapid cases in the young adult, showing the cardinal symptoms of marked polyuria, severe headache, gastro-intestinal disturbances and ocular changes, may be diagnosed without the use of the sphygmomanometer, although they also show hypertension.

Arteriosclerosis is never the cause of any marked permanent increase in blood pressure as has been shown by the experiments of Longcope in narrowing the mesenteric arteries.

There have been some cases of hypertensive cardio-vascular disease *without* underlying chronic nephritis, as is proved at autopsy. These cases, however, are rare and the cause of the hypertension is obscure.

Having discovered a high blood pressure, what should be the attitude of the general practitioner in regard to treatment? No one today considers the discovery of a well compensated heart lesion an indication for the immediate use of drugs. On the other hand, no one will say that we should stop examining the heart just because the patient does not present cardiac symptoms.

It is becoming more and more clear that the duty of the physician is the prevention rather than the cure of disease, and the discovery of any evidence of disease should cause us to take steps to prevent its further development. The discovery of a high blood pressure as well as that of a cardiac lesion affords the physician an opportunity to safe-guard the integrity of the cardio-vascular system.

As the therapeutics of blood pressure will be discussed later in the program, I will only say that this treatment includes the regulation of the patient's entire daily life. We should stop the use of any stimulant which will affect the myocardium, among the most important of which is tobacco, and so direct the habits of the patient that we will prevent any undue excitement, worry or nervous strain, and sudden or excessive exertion. We should give definite directions as to exercise, massage, diet and baths.

As this calls for the entire regulation of a patient's life and perhaps a complete change in his mode of living, it is much more difficult than the writing of a prescription on the part of the doctor, or the swallowing of a nauseous dose on the part of the patient.

In the treatment of hypertensive cardiovascular disease and nephritis, blood pressure readings should be taken frequently to determine the effect of the drugs prescribed. However, we should not neglect the clinical symptoms in these cases as they are more important than the blood pressure readings. It should also clearly be recognized that in some cases a high blood pressure is nature's method of trying to correct a serious pathological fault. We know that in well compensated cases of aortic insufficiency the blood pressure reading is frequently well above 200 mm. of mercury. It is only when serious clinical symptoms, such as dyspnea, anginal attacks, or uremic symptoms appear, that active treatment should be begun. In these cases the sphygmomanometer will give us definite information as to the effect of our digitalis and vaso-dilators.

Not only should a blood pressure reading be taken in the examination of every new patient and in the treatment of cardio-vascular disease, but it should be taken in every examination certifying to a condition of health. Most of the Life Insurance Companies now require this test of every applicant for insurance. The chief value of this test lies in the fact that by

a study of these records in conjunction with the pulse, we are able to detect beginning pathologic change in the cardio-vascular system or kidneys; often before there are any definite signs in the physical examination, personal history, or urine. In the past, numerous applicants suffering from these diseases have been passed into the companies. These cases have invariably shown a high rate of mortality and their families have within a few years collected large policies. It is in these cases that it is especially important that no injustice be done the applicant by the record of a single abnormal reading.

I believe that no case of obstetrics should be undertaken by a physician without the repeated examination of the blood pressure as well as of the urine. Cases which go above 150 need careful watching as they may at any time develop into a case of eclampsia. A sudden rise of blood pressure is the most dependable indication we have of this threatened trouble and is more important than the discovery of an albuminuria because it shows much earlier. Hirst has set the limit of pressure to be 180 mm. of mercury and always empties the uterus of the patients showing this reading, regardless of the symptoms.

The general practitioner has in the use of the sphygmomanometer a definite means to contribute much to our scientific knowledge of the subject. The study of blood pressure is still in its infancy. The results of experiments trying to determine the cause of high blood pressure up to the present have been disappointing and of the real physiological mechanism we know nothing as yet. If the general practitioner should begin recording as a routine measure the blood pressure of his patients, following that patient from year to year, from infancy to old age, he would contribute most accurate and definite data in regard to the diagnostic value and normal limits of blood pressure. In hospitals we see only the end results of disease, and the pressure taken there may be affected by many concurrent causes. Twenty years of careful collection of statistics in connection with the appearance of the earliest clinical symptoms will give us complete case records of the whole panorama of life from health through the stage of chronic disease to its final termination, where the lesion may be identified at autopsy.

There are other important conditions in which the blood pressure may be of diagnostic value, such as the acute abdominal pain which occurs in the gastric crises of tabes and attacks of lead colic. By it, these conditions may be more clearly differentiated from biliary or renal colic.

In most of the acute infectious diseases the blood pressure is low with the possible exception of epidemic meningitis.

In the depressive psychoses with anxiety, as melancholia, the blood pressure is elevated, whereas in the states of maniacal excitement, the pressure is lowered.

In the determination of blood pressure the practitioner should never neglect to ascertain the diastolic as well as the systolic reading as it is the mean blood pressure which gives us our diagnostic data.

I have not said anything in this paper in regard to the lower limit of the systolic readings, as I have been unable to find enough data concerning it from which to draw a definite conclusion as to its importance. Cases with a pressure as low as 50 mm. have been known to recover. It is of most importance after severe hemorrhage or during surgical shock with the possible exception that we will find later that all tubercular subjects have a uniform low pressure.

In conclusion, I will say that in the use of the sphygmomanometer the general practitioner has an accurate means of diagnosis and should make use of it:—

1st.—In the examination of every new patient.

2nd.—In the treatment of cardio-vascular disease.

3rd.—In all obstetric cases.

4th.—In all examinations as to the state of health.

5th.—In order to contribute to the knowledge of this subject.

6th.—In acute abdominal pain.

7th.—In suspected epidemic meningitis.

8th.—In psychiatric cases.

9th.—In suspected cases of hemorrhage.

10th.—In cases of tuberculosis.

THE NOSE, THROAT AND EAR IN RELATION TO GENERAL MEDICINE.*

By W. S. HODNETT, M. D., Danville, Va.

The upper respiratory tract is the channel in which the air is prepared for the interchange of gases which takes place in the air vesicles of the lungs. The nose is especially concerned in the process of humidifying, warming and filtering the inspired air, and it is obvious that any disease or obstruction that interferes with these physiological processes will affect the transfusion of gases through the capillaries of the walls of the air vesicles. The absorption of oxygen by, and the elimination of carbon dioxide from, the blood will not occur in normal ratio. As oxygen is essential to the processes of assimilation and nutrition, its lessened quantity in the blood gives rise to certain disturbed conditions of the digestive, the assimilative and the nutritive functions.

It is well known that the excessive accumulation of carbon dioxide in the blood acts as a poison to the leukocytes, thus interfering with their functional activity. It not only interferes with the activity of the leukocytes, but also with other cellular structures of the body as well. The combined effect therefore of an increased amount of carbon dioxide and a diminished quantity of oxygen in the blood is to produce general anemia, indigestion, malassimilation, malnutrition and infectious processes. The xanthin group of toxins, including indican, are thrown into the circulation and give rise to certain nervous phenomena as restlessness, peevishness, headache, mental depression, aprosexia and a general feeling of malaise. The digestive disturbances are still further increased by the ingestion of the infected secretions from the epipharynx and the tonsils. Putrefactive as well as pathogenic bacteria are swallowed with the secretions from the nose and throat and give rise to what is commonly known as chronic dyspepsia or indigestion. It is probable that the putrefactive germs are more potent in this connection than the streptococci and the staphylococci. The conditions of the nose and throat which most commonly give rise to this kind of discharge are nasal stenosis, atrophic rhinitis, chronic rhinitis, sinusitis, epipharyngeal catarrh, and chronic follicular

tonsillitis. There are certain conditions of the stomach and of the intestinal tract which affect the mucous membrane of the upper respiratory tract. If, for example, there is chronic indigestion, there is also malassimilation and faulty metabolism. The imperfect products of indigestion are incompletely oxidized and are thrown into the circulation, where they irritate the mucous membrane of the nose as well as the vasomotor nerves, thus causing local congestion and overnutrition. The secretions of the glands of the upper respiratory tract are also thereby modified, thus predisposing to, or at least intensifying the catarrhal disease present.

In the same way hyperacidity and subacidity of the stomach may indirectly irritate the mucosa of the nose and throat. One of the most potent influences exerted by the products of indigestion is through the reflex nervous system, pharyngitis, hypersensitiveness, sneezing, etc., being the direct expression of this condition. In atony of the stomach there is a putrefactive formation of gases which act reflexly and through the circulatory system on the mucous membrane of the upper respiratory tract and cause phenomena quite similar to those just mentioned. Another quite similar condition occurs in gout or lithemia. In the pharynx there may be itching behind the pillars of the fauces, associated with a similar irritation in the external meatus of the ear. Some observers regard these signs as characteristic of gout. Vomiting and eructation of gases from the stomach exert an irritating effect upon the mucous membrane of the pharynx, the epipharynx and the nose. The irritation is due to biochemical as well as mechanical causes. Catarrhal inflammation in the epipharynx is thus perpetuated and may finally extend to the Eustachian tube and the middle ear, and cause tinnitus and deafness.

All the organs of the body are more or less intimately connected by the vascular, the lymphatic and the nervous systems; hence, disturbances in one more or less affect the others. The blood vessels and the lymph channels carry toxic and infective material to all the organs of the body, including the nose, throat and ear, and thus influence the functional and the pathological processes in these organs. *Anemia* is a condition of the blood due to various causes and often gives rise to collapse of the erectile

*Read before the South Piedmont Medical Society, at Danville, Va., April 15, 1913.

tissues of the nose. This is usually spoken of as rhinitis with collapse of the turbinated bodies. On the other hand another condition of the nasal mucous membrane which may cause anemia instead of being a result of it, is atrophic rhinitis. If the lymphatic vessels are charged with infective material which is finally transferred to the blood vessels and tissues of the entire body, a state of general toxemia is induced, the nose, throat and ear participating in the disturbed processes.

One of the commonest clinical pictures is that wherein the lymphatic glands are enlarged by suppurative disease of the ear, nose and throat. The close approximation of the mucous membrane of the nose and ear to the contents of the cranial cavity may also give rise to serious consequences by the conveyance of infective material thereto. Brain abscess, meningitis, septic thrombophlebitis, etc., may be thus caused, although the usual channel of invasion is through a necrotic area in the floor of the cranial cavity. The nervous system when disturbed in its function, necessarily influences the upper respiratory tract as well as other parts of the body. We may thus have vasomotor rhinitis and asthma, as well as certain functional disturbances of the ear and larynx as a result of a disturbance of the general nervous system. Hay fever, laryngeal cough, sneezing, bronchial asthma, anesthesia and hyperesthesia of the mucous membranes of the ear, nose and throat are reflex phenomena which may result from the irritation of the nervous system by the toxic material in the circulation.

Another very important disease generally regarded as due to infection of the blood is rheumatic fever, or acute articular rheumatism. The gateway of infection is often through the tonsils or some portion of Waldeyer's ring. Malaria is another disease affecting the blood which gives rise to certain symptoms in the ear, nose and throat. Mastoid pain, and indeed mastoid suppuration, has been observed in which the malarial element was prominent. The malarial poison may also cause nasal hydrops and vasomotor rhinitis. The blood vessels and lymph vessels are channels of communication between the throat and the appendix. In certain cases of appendicitis it has been shown that streptococcus infection was present both in the throat and in the appendix. Another possible source of communi-

cation in these cases is through the alimentary tract. The skin and kidneys are the chief excretory organs of the body. Eczema, lupus, etc., affecting other portions of the body may also involve the external nose and external ear, or the pathological processes may begin with the skin of the nose or external ear and extend to other parts of the body. Erysipelas of the nose may involve the nasal mucous membrane and erysipelas of the skin over the mastoid process may extend to the middle ear and the mastoid cells, or even to the cranial cavity through the lymphatics and blood vessels of this region. The kidneys may be diseased by prolonged infection in remote parts of the body as in the nasal sinuses. Bright's disease may manifest its earliest symptom as a dryness of the throat. The same symptom may also be present in diabetes. When a patient complains of persistent dryness of the pharynx, his urine should be tested for albumen, casts and sugar. Edema of the glottis, causing laryngeal stenosis is often due to uremia developing as a result of Bright's disease.

Another disease which may express itself through certain pathological changes in the ear, nose and throat is syphilis. The nose may be the primary seat of the lesion, the infection taking place in the removal of crusts from the septum with the finger. The tonsils are occasionally the seat of the primary lesion through the use of infected instruments in the throat. Secondary syphilis may manifest itself by mucous patches, by hyperemia of the larynx, hoarseness and syphilitic coryza. Syphilitic lesions of the tonsils presenting a dirty grayish necrotic surface resembling diphtheria are occasionally observed. The tertiary manifestations of syphilis are syphilitic pharyngitis and laryngitis with a raucous voice. Diphtheria is another disease with marked constitutional symptoms which makes its first and only local symptoms in the throat and nose.

As is well known, measles, scarlet fever, and a good many of the eruptive fevers make their first appearance as a reddened sore throat some time before the other symptoms appear. Numerous other instances could be enumerated, but I think these are sufficient to show the intimate relation and the necessity for knowing both to practice either.

Dudley Block.

THE CENTURY OF THE CHILD.*

By FRANK HANCOCK, M. D., Norfolk, Va.

The services Listerism rendered *motherhood* transcends all else because the scope of surgery will diminish when the conditions that bring it about are no longer forthcoming.

Surgical instruments of the present day will be found in the museums of the future, and will there be gazed upon by the curious as we look upon the historic remains of our ancestors of the Stone Age today.

The cleanest surgical knife in the world is a brutal and barbaric thing, and will give the shivers to the refined intellects of the succeeding centuries, as they contemplate how it was thrust into the delicate and subtle tissues of the human body.

It will be this that will destroy the flavor of the knife: the *promise* of bacteriology to produce for us specific chemical substances that will destroy all peccant micro-organisms, leaving nothing for Nature to do but to "clean up the mess."

The disappearance of rickets and surgical tuberculosis, of cancer, and gonorrhoea, will make of this new art a lost art.

But the necessities of birth remain, if life is to go on; because science cannot abolish individual death, it being no part of Nature's plan to perpetuate the individual, or to permit him an indefinite tenure.

Metchnikoff's hint as to *prolongation* was due to the rather credulous view he had of the census takers of the Balkan States; and to some desire on his part, too, to be the medium of a long sought benefice.

Nature never intended that a man should survive his mental and physical usefulness: and if he stay too long, she returns, with weapons she holds in reserve for such cases—sarcoma, for instance, to which a man is insusceptible after forty, but to which his tissues again become activated in senescence.

Great Nature beckons us away, that the earth may seem forever young, may retain its sense of youth and beauty; while we have had the honor of service, have brightened the flame of life as we ran with it, surviving, at least, in the memories of those who knew us, whom we influenced and encouraged. This is the solution

of the Master Knot of Human Fate that so disturbed the Persian poet. Shelley exclaimed passionately:

Alas! that all we loved of him should be,
But for our grief, as if it had not been,
And grief itself be mortal!
Oh! woe is me!
Whence are we? And why are we? Of what scene
The actors or spectators? Great and mean
Meet massed in death, who lend what life must borrow.
As long as skies are blue, and fields are green,
Evening must usher night, night urge the morrow,
Month follow month with woe,
And year make year to sorrow.

Thus humans mourn, who would perpetuate themselves here or hereafter, rather than survive through their successors in new and redolent life: the dominant note of all Mr. Meredith's teachings.

Let us retire in dignity and peace, without disclaimer of responsibility, without panic or fear, returning to the earth that produced us, as the highest expression of its life.

It is the province of this profession to *lessen the accidents of maternity*, and in doing so let us reverently remember for a moment the case of the obstetrician, Ignaz Phillipp Semmelweis, whose suffering was the most poignant in our history.

It is our privilege to care for this nascent, inchoative life, to protect, and care for the child until it reaches the road "it must travel too;" when reason, courage, and health, given it by an intelligent State and parenthood, will direct and govern it.

It is a great duty to be present at the first manifestations of life, to guide it into a conscious existence. This is the business of the medical profession, to which it is attending, and will attend, with objurgations, or without them; contented to believe that it is right, without always the hope of patent corroboration.

Let us see where some of these duties lead us, that we may "disentangle, if possible, the truth from a thousand conjectures, in the midst of contradictory comments, and among all the hypotheses to which a single fact gives rise." Let us read the spirit of the Universe which sometimes seems at best, "of dark and doubtful countenance," because the value of our lives depends upon our serviceableness to comrades and successors.

It has been our peculiar duty always to have

*Read before the April, 1913, meeting of Norfolk County Medical Society—Section on Diseases of Children.

been the image-breakers of society, to have gone about in the gallery of sacred and venerable things with our clubs. We have represented especially "the spirit which rules life, not a spirit of creation, nor one of destruction, but a spirit of evanescence." We have been the pathfinders, the engineers, seeking new routes to fairer and finer fields.

We have had to drag society along after us, too, protesting vainly that they much preferred to remain as they were. Anyway, they said, "You are opposed to *Celestial Science*." We said, "No, we are only opposed to what you believe *Celestial Science* to be."

Recently, we have issued a manifesto for the conduct of human beings, which we have called *eugenics*. In connection with it we announced that it was with some approbation we noted *the falling birth rate*, and we asked for the privilege of directing that decline; whereupon various moralists and arm-chair critics denounced us; but the birth rate continues to fall, until finally on account of their comparative rarity every child that comes into the world will be loved, desired, and cherished, according to the eugenic ideal.

The science of eugenics contemplates the sterilization of the unfit men and women by operation, or segregation. When that happens, as it will happen, the census takers will not find 68,000 feeble minded children in the South, as they found in 1910.

If it is a high calling to bring children into the world, it is a higher calling to bring those who can measure up to mental and physical standards of efficiency, and then to train them to do the best work possible in the time given them to live.

The strongest family is the family that trains its children best, that begins this training before those children are born. "The nation that thus educates its children will rule the world."

A test of civilization is the interest it displays in the weakest of its people, women and children; and as we advance in that scale we see the advent of law, regulating the hours of work of women and children; compulsory education; perfected legislation controlling the gathering of vital statistics; quarantine of the feeble-minded, effective methods of the prevention of disease, more effective than are dimly dreamed

of to-day, and a proper care of destitute children.

It is the purpose of the Southern States to make the economic investment of caring for those 68,000 delinquents; to gently and kindly train them in useful occupations, to give them the greatest possible development, to recognize that they cannot sustain social and moral relations creditably; to inculcate habits of honesty and truthfulness, courtesy and usefulness, neatness and order, and, finally, patient industry. In this way they will become serviceable to their foster parent, the State, between whom and them will develop trustfulness, affection, and mutual service, in place of the old anti-social traits. It will be the State then that will merit the approbation of the Galilean: "Since ye have done it unto the least of these, my little ones." It was proved there, too, for all time, that destitution does not carry inferiority. H. M. Stanley was an orphan asylum product, Lincoln was destitute, and Moses is said to have been adrift. However, it is not with individuals that society is intimately concerned, because that is precisely the way the medical profession treated cholera and yellow fever, attacking it when it appeared. Then Koch, and Reed, discovering the causes, taught the means of prevention, and these diseases disappeared.

So eugenics, born of the mind of Sir Francis Galton, will destroy the feeble-minded, and the terrible drain of their misdirected energies upon society.

At present, however, it is necessary to have Juvenile Courts to deal with the army of children who, all innocently enough, are continually violating society's laws. These Juvenile Courts have seemed to establish the fact that they can "save these children to the State by aid, and sane counsel, instead of turning them against the State by methods as obsolete as they are cruel and inhuman."

The children will be put in charge of a probation officer, or sent to a home for the feeble-minded; at any rate the Juvenile Court will not incarcerate that child in any kind of a jail, or penitentiary, for any punitive purpose whatsoever, because the Juvenile Court, not having to deal with criminals, does not practice criminal law.

Playgrounds, and things to play with, will consume the play time of the youths of any

city, who are never more to be regarded as noxious animals, to be beaten by policemen for stepping on sacro-sanct grass.

Sociology has this to say to its enemies:—that it strikes directly at the *springs of social life*, and does not content itself with *curing* social disease; so it damns the factories that run on child labor, with large dividends for plethoric persons; declares for an education that will carry children through their adolescence, and relieve them of their present illiteracy, which exists to the extent of 70 per cent in the children employed in the mills and factories of Virginia, to-day.

Sociologists are calling attention to the Southern cotton mills where 20 per cent of all employees are under sixteen years of age; and to the further fact that 91 per cent of mills in North Carolina were found to be violating even such laws as already exist there for the protection of children.

Sociologists further maintain that society has never been so stupid as in its indiscriminate punishment of criminals, without considering either the antenatal influences with which they pulsate, or the social conditions which surround them, and of which they naturally become a part.

Casuists they are, and they say, *you cannot inject fear into criminals through punishment, nor deter others by the harshness of your methods,—points wonderfully developed by Victor Hugo in his great novel, and by Tolstoi in the enunciation of his fine philosophy, laying down the law that you cannot overcome evil with evil, but if you overcome evil at all, you must overcome evil with good.*

A society that has abolished capital punishment—and no society well beyond the border line of intelligence will perpetuate it—will take note of these splendid forerunners of enlightened government; and will see to it that they are not lost to the memories of their distant successors.

It is society that provides the criminal environment that is *guilty*, and not the poor victim who snatches at something his childish mind does not know how to get in a prescribed way, something that his wild fancy tells him he wants. The four gunmen awaiting death in the city of New York have my profound sympathy.

Has any man violated a law, or a moral, of which he has never heard?

Sociologists declare, finally, that a reasonable education for every girl in this country, with a prompt removal of the feeble-minded, and a minimum wage for women, will deplete the ranks of prostitution, because prostitution naturally subsists upon incompetence and illiteracy; and is too unattractive, anyway, for educated and trained women to engage in. Men and women properly disciplined will not continuously or entirely prostitute their faculties.

Raids upon red light districts, now nearly obsolete, have been most inhuman, always consisting in savage attacks upon the most defenseless children that civilization has known. These raids have usually been fostered, and made by vaporous preachers—preachers of the type that are always the boldest where the dangers are always the least. They remind me, some of them, of what Edwin Markham says is the most powerful metaphor in all literature, the metaphor of the whited sepulcher.

408 Duke Street.

THE OPPORTUNITY OF DOING PUBLIC HEALTH WORK IN CONTRACT PRACTICE.*

By C. B. BOWYER, M. D., Stonega, Va.

Since the financing and business methods in developing natural resources and promoting mining industry has become an applied science, and since, with modern competition, the recognized economic savings in large corporations and combines, together with the fluctuations and uncertainties of the market, all demand that a modern organization be the embodiment of master minds, who are scholars of aggressiveness, vast fortunes are invested in equipment, and the working man is the dependable source of prosperity. Industrial leaders now recognize that their development and progress in the future will depend largely on the study they give to growing and perfecting an organization on a broad basis, and to adopting those rules which will make industrial life more attractive to the best labor, and which consider the comfort, well being, and health of their employees. Consequently, a contracting physician, wishing to do

*Read before the Virginia Public Health Association, at Norfolk, Va., October 24, 1912.

public health work, has for a working basis clients who are schooled more or less in a good organization, and are taught well-established rules for working and living, with superiors, men who have become leaders in the industrial world and feel the importance of lessening the tremendous waste of life.

No argument is needed to convince men that our present State health laws, properly enforced, are a necessity, and one of the strongest public assets of which we Virginians boast. The demand and supply for labor is becoming a more vital question each day, and the conservation of human life is demanding more and more attention. Health officers have demonstrated their work in our army camps and naval stations. The canal achievement is convincing proof of the important part that the fundamental principles of medicine must play in developing and accomplishing "big business" where an army of industrial toilers is required.

With these demonstrated facts for support, a contract physician has an unquestionable opportunity and support for doing health work in his territory.

As contract practice appeals mostly to those who are just out of medical institutions and hospitals, unlocated, and desiring active service and varying experience, we find that a great per cent doing this work are young men, fresh from the training in preventive medicine, who are taught the necessities of isolation, sanitation, and health laws in treatment, and know the infallible results of carelessness and neglect. These young physicians, ambitious, wishing to escape defeat and attain success, will readily conform their system of practice to health laws and see that their instructions are obeyed. They are abreast with the times, and will more easily fall in line with public health work than the older physicians in country districts, who were taught under a different curriculum. A contract physician has an advantage in his training, and he has also a better opportunity in his practice for public health work than his country colleague. His work is better systematized; he has a prescribed area over which he supervises the medical organization, and is, in a sense, responsible for those conditions which lay the foundation for diseases. Furthermore, his efficient service and success, the barometer of his salary, depends on his ability to organize, the

public confidence he can inspire, and the earning capacity he can give the wage earned. Being a medical servant, upon whom all the people depend, with no additional fees for the extra amount of service he renders the individual or family, he is summoned at the first signal of approaching disease. Hence, he is in time for effective isolation and detention and can give valuable warning and barricade the infectious foe. Also, he soon learns that this timely work, "an ounce of prevention," materially lessens his work and worry, on full pay, and he soon acquires the good habit of wishing to dispense public health work in "huge and enormous" doses.

Stimulated by a salary to maintain the health of the wage earner and his family, dealing with a people who are all subject to the same discipline and governed by the same organization, practicing among a class who are most ignorant and resent sanitary principles, working for a company which is materially interested in the health, earning capacity, and well-being of their men,—all make a great opportunity for the contracting physician to inaugurate and enforce public health work.

Although apparent that a contracting physician is afforded a great opportunity for health work, a hasty inference must not be drawn that his work is narrow in scope, and that the general public will be the recipients of but little good, while the capitalists will reap the harvest from his co-operative efforts with State Health Officers. Any public health work performed is a benefit to the State; any public health work enforced in a mining town, protecting the health of the wage earners, guarding his family from disease and defects, and instructing in the growth and development of his offspring benefits the State, for the State must depend upon the wage earner for its progress and prosperity. The "plebs" and uneducated are the people who most need sanitary instruction and public health supervision. In a mining town or industrial plant, the work of the physician can be more effectual, as it is among this class that he mostly administers. The census of our mining towns will bear out this statement, that over forty per cent of the inhabitants change yearly. This migration of labor from plant to plant is the source of invasion of an almost continuous epidemic of various contagions so prevalent in industrial regions. The migra-

tory movement of this careless and indifferent type is also largely responsible for the epidemics of our State. The doctor who is constantly in touch with this nomadic crowd, and is paid to render them medical attention is the one above all others to be entrusted with supervising the health laws. As he is forced constantly to keep an eye on this class, he is the one you must look to to accomplish the most efficient work.

While it is evident that contract practice presents great opportunities to do public health work, there are many obstacles to be encountered, and almost insurmountable difficulties which must be remedied or removed, before the physician can use the opportunities or be of much benefit to the State in her great crusade against those evils and conditions which threaten the vigor and virility of her citizens.

First, the contracting physician must be placed in closer alliance with the health commission, made more intimately associated with the work of the organization, and made to feel that this great duty and responsibility is encumbered on him. The Company Physician knows the advantages in his work of a well regulated system, based on hygiene and sanitation. If the health commission will use him as a source through which to inaugurate and supervise their work, giving him power, when necessary, to enforce health legislation, then you will put the contracting physician in a position to grasp the opportunities presented, materially aiding the State in her valuable work and effectually reaching those places where health laws are most needed.

It is true that the counties have their health officers to superintend this work and my remarks are not to be interpreted as any reflection on their ability or sincerity in the performance of duty. However, in Virginia, as contract practice is confined to mining regions, where the community regards such holdings as private, controlled by an organization which they think isolates it from them—a thing apart,—the health officer is imbued with the same spirit. They feel that a mining organization is private, that the employees are under an organization which regulates their work and manner of living. They also feel that the company is able to care for their sick, know that they have good medical attention, and feel that the community is none the loser for the health conditions of the plant; consequently, they have

a strong inclination to leave the health of the employees entirely with the Company Physician.

Such reasoning, reinforced by the fact that contract practice affords but little opportunity to render claims against the county for this work, and as this source of revenue is practically *nil*, they are satisfied to leave the contract doctor to work out his own salvation. The contract doctor, on the other hand, wishing to be equally as independent and indifferent, adopts such rules as seem, in his judgment, to be most befitting to his work and success. Hence, we find the contract doctor and health officer on friendly terms, but of little trouble or mutual aid to each other. To combat this unfortunate condition, make the company doctor a special agent for the Health Commission; confine his work to his own territory and you will get results in your crusade for health, and yet not infringe on the rights or authority,—or purse,—of the county officers.

Again, you must remember that in establishing your prescribed health rules in a mining town you are doing a pioneer work, and dealing with a class, who are not only ignorant of these fundamental principles of medicine necessary to maintain conditions favorable to health, but you are handling a people who often resent such measures, and regard your work as an infringement on personal liberty and private affairs. To force these people into submission by a health officer will never accomplish the desired results. You will have to educate them to your methods, to co-operate with you in the work, and appreciate results; and not force them to yield to your wishes in a rebellious spirit. "Their Doctor," whom they soon learn to respect and admire, is your only apostle to carry your message of health and convert them to your teachings.

Although a large per cent of the people under my charge are constantly in danger of exposure, as they live in a town composed of people with such nomadic traits, it took three years to demonstrate to them the advantages and protection of vaccination. The initial step to stamp out this detestable disease required compulsory vaccination of nearly four thousand. Now our plants are kept thoroughly vaccinated, not by compulsion, but by the simple request, and the old "pest house" is an almost forgotten landmark on the road of progress. A small cottage

takes its place, a Mecca for the straying traveler, who chances to strike our town and requests a stop over privilege—until he can papulate, vesiculate, and pustulate, and is able to take up his stall, and on his way.

Two seasons of typhoid were required to demonstrate that flies could transmit the disease, and that isolation, screening windows, sanitary measures, etc., were necessary to stop the spread. Now I am criticised if I neglect to screen the sick room or disinfect the excreta. Several of those horrible scenes, where a mother ignored the warnings of the doctor, rushing in on scarlet fever or diphtheria with her child, the pride of her life, and later spending sleepless nights in that most agonizing and heart-rending spirit, praying God to stay the hand of Death, were necessary to convince mothers to heed warnings. Now, they have the utmost respect for the warning of the placard.

In your active work in this movement, it behooves you also to gain the sympathy and support of the companies, for they are the ones who have made the Southwestern part of the State one of the most important and rapidly developing sections in the South, in spite of being handicapped by lack of scientific study and advice relative to controlling those preventable diseases prevalent in this section. They are willing to co-operate with the Health Commission in combating those forces that lessen the vitality of men, but they would like to see it through those channels which would make it most efficient under their existing industrial conditions. You should make a study of the labor conditions and its problems, and not attempt to tear down adverse sentiment, or enforce your laws in such a way as to cause disturbance or marked dissatisfaction among the employees. It is important, also, in studying those forces which prevent health waste, to consider the economic basis upon which modern competition has placed our great industries, and conform your rules to such principles. This great conservation problem must be faced, but it must be worked out on a broad basis, giving due consideration to its various and important phases. After the Health Commission has given it noteworthy thought and studied and formulated its working plans, let them use the contract doctor to crystallize their sentiments, direct their work and foster

their principles. Then you will see effective work in the part you are playing in the evolution of man.

THE PRACTICE OF MEDICINE AS A BUSINESS.

By J. L. SHEPPE, A. B., M. D., Mt. Sidney, Va.

An old professor once said, speaking to a class about to graduate in medicine: "Boys, you are about to enter a noble profession but a damn poor business." It is the business side of the medical profession that I wish to discuss in this paper.

Time was when the doctor was beloved and trusted and looked up to as a leader in the community; when the family physician, respected and honored, occupied a place in the hearts of his people second only to the minister. He was a prince of honor; his word was as good as his bond. He never led astray those who sought his council; never betrayed the confidence reposed in him; never besmirched the good name of a woman, nor knowingly deceived by exaggerating minor ills in order to multiply visits and run a big bill. We still like to think of the old time doctor as depicted in "Bonnie Brier Bush;" but, alas! his kind is rapidly becoming extinct like the do-do and the ichthyosaurus of paleozoic times.

The medical profession is no longer the vocation of lofty ideals and noble purposes that once characterized it. It has fallen from the high plane of respect and honor which it once occupied; lost its pristine dignity and prestige, and degenerated into a low sordid scramble for existence.

The young M. D., armed with his diploma, emerges from college with visions of great social prestige, people tumbling over themselves to seek his advice and dollars pouring into his coffers in an unrelenting stream. He sallies forth like a warrior bold to do and to dare for suffering humanity. He meets and vanquishes the State Examining Board with one fell swoop and at last he is ready to hang out his shingle. So he starts out to find a location. Everywhere he goes he is informed by the men on the ground that there is already a surplus of doctors in that community, but that there is a good opening in the next neighborhood. There he meets the same reception and is directed to a good location farther on. Gradually it dawns

upon his unsophisticated intellect that the profession of medicine as a class, is dominated by a spirit of selfishness, with no thought of the interest or welfare of others; that it is dog eat dog, every fellow for himself and the devil take the hindmost; and that the beautiful "code of ethics" which he was taught he must reverence and respect exists only in fancy.

Every year it becomes more difficult for the doctor to make an honest living to say nothing of laying something by for a "rainy day." There are a number of causes responsible for this state of things, some of which I shall briefly enumerate.

Human ills and human misfortunes are the doctor's most trusted allies. Every effort, therefore, made in the direction of better public sanitation, improving water supplies, disposal of sewage, food inspection, free dispensary service, and the hundred and one measures employed to conserve health and prevent disease, all tend to limit the doctor's sphere of activity and cut down his income. Foremost in the fight for public betterment and up-lift we find the medical profession. How paradoxical! How illogical and incongruous! A great profession fighting to limit the sphere of its own activity and to destroy its own business.

Contributing to the same result is the overcrowded condition of the profession, and to make matters worse, a new crop, four or five thousand strong, is turned loose by the medical colleges every year. The annual income of the average doctor is placed at \$1,000 per year. Some say \$750 is more nearly correct—a mere pittance, considering the outlay in time and money which the doctor must make in order to acquire the right to practice. Compare the average income of the doctor with that of other occupations. The stone-mason receives \$3.50 per day; the carpenter \$3.50 to \$5.00 per day; the house painter \$4.00 to \$5.00 per day; the hod-carrier and day laborer, \$2.00 to \$2.50 per day. These wages are paid for eight hours' work. The doctor's work, on the other hand, is never done. He has absolutely no time he can call his own. Day or night, sunshine or storm, summer's heat or winter's cold, no matter when or where, he must go when called, and then he is paid for his faithful service on the when-I-get-good-and-ready plan, or in potatoes or cordwood, or not at all as the case may be.

Working only half his time the annual income of the skilled mechanic approximates closely that of the average doctor. Even the day laborer and the hod-carrier make almost as much. The same preparation, training, energy, self-sacrifice, skill and intelligence required in the practice of medicine, if applied in any other line of business, would yield an income far in excess of that earned by the rank and file in the medical profession.

The patent medicine business contributes in no small degree to the curtailment of the doctor's fees. Go into any country home and you will find from one to a half dozen kinds of patent dope of one sort and another, recommended for all the ills flesh is heir to. It has been found on investigation that nearly \$2,000 worth of patent medicine is sold annually in the United States for every doctor in the land. The public have come to look upon doctors as a sort of necessary evil to be avoided as long as possible; and to escape calling a doctor patent medicines are resorted to.

The druggist, also, takes from the doctor legitimate business by prescribing over the counter "something good" for this or that ailment and by repeating his prescriptions without his sanction. One druggist reports that he refilled a certain prescription 125 times for which the original prescriber received but one fee.

Advertising fakirs, and the various drugless cults, faith healers, Christian scientists, osteopaths, chiropractics and all of that ilk, are active competitors of the doctor, skilled alike in the art of bam-boozle and fee-getting. They thrive and fatten on the suckers, of whom it is said, one is born every minute. While Dr. Ethics sits in his office, smoking a cheap cigar, waiting for patients that never come, the reception room of Dr. Spine-adjuster across the street is thronged with clients, anxious to empty their shekels into his well-filled pockets.

Because of the forces and conditions, working to the financial disadvantage of the doctor, and so keen has competition grown, it is not much wonder that the practice of medicine has become a sordid scramble for "the survival of the fittest;" and it is pitiable to see to what despicable subterfuges the common run will stoop in order to get business.

First, there is the cut-rater—the fellow who endeavors to entice your families away from you, by proposing to do their practice for 75c

per visit, when you charge a dollar and fifty cents; who underbids you whenever possible and even offers to attend your obstetric cases free of charge in order to beat you. It is needless to say that the man who belittles prices, belittles practice and belittles himself. The laity will not be likely to place a higher value upon you than you place upon yourself. A cheap article, generally speaking, is an inferior article, and some are dear at any price.

Some are adepts, past grand-masters as it were, in the art of cashing the bluff. In auto-car or buggy they are seen dashing up and down our town and village streets and out into the country lanes and highways, while the astonished natives look in wonderment and say: "What a busy man Dr. Boozheister must be!" But it is all a bluff, that only and nothing more.

Some write personal letters soliciting patronage and even beg for practice. The last words of the minister are scarcely pronounced at the altar when the young Benedict is importuned for his future patronage.

Some sell their services to corporations, shops, factories and lodges, often at almost starvation rates for the purpose of advertising themselves to the people.

Some use municipal jobs, such as school inspectors, vaccinationists, and health officers, as business getters.

Some use the local press to boost themselves in the public eye by causing the publication of free notices of wonderful operations performed or of other wonderful things done by Dr. So-and-So. Here are some examples of this sort of business-getting schemes:

John Doe, of Plunketstown, was operated upon for appendicitis yesterday at the Sisters of Mercy Hospital by Dr. Boozheister. He is doing nicely and is expected to be well soon.

Mr. John Smith was stricken last night with an attack of acute indigestion and "deemed it wise" to call Dr. Blowhorn, by whose wonderful skill he was promptly relieved and Mr. Smith is now out of danger.

Mrs. Samantha Jones, on Vine Street, is suffering from a mild attack of appendicitis. Dr. Hardup was called and the patient is doing very well. And so on *ad nauseam*.

Even hospitals have been known to employ "the dollar a line" system to gain publicity when some unusually brilliant operation has been done by Dr. Highbrow. Nor have the

luminaries both in this country and Europe been averse to using the same means to exploit themselves and their doings. Cashing a church membership, a lodge pass-word, or singing in the church choir are common methods of bidding for business. All of which is perfectly ethical, of course. Certainly, any means of publicity is perfectly ethical so long as it is not bought and paid for.

What a howl the straight-laced, pseudo-punctilious, ethical brethren would raise in the camp if Dr. Blowhorn or Dr. Boozheister should sign their names to the notices which they had written and caused to appear as local news items. Talk about ethics! Ethics! the word is "a sounding brass and a tinkling symbol." Ethics! a hypocritical cloak under which to hide professional dishonesty, trickery and charlatanry.

A recent writer on the subject hits the nail squarely on the head when he says:

"Speaking of ethics among the ethical, the in-good-standing gum-shoe, indirect pirate is the most damnable and hardest to punish. He steals your patients by looking shocked when told of some part of your treatment; by remaining silent when he should defend you; by making useless examinations solely to enlarge on your work; by saying 'and as your doctor has told you I find* * *—something you haven't found, neither has he; by delegating his wife or old maid sister to capture one of your best families by the art of indirect suggestion; who smells your medicine, and still speechless changes the R; who fails to telephone you when in your absence he has seen your client, etc., *ad nauseam*. This predatory party is not unethical—the term is too dignified. He is not a real thief. He is just a puny, petty larceny sneak. Were he a dog the term cur would be a compliment. And yet he is everywhere."

And I may add, not only is he everywhere, but his name is legion. I have met him many times and so have you.

Surgery alone is the well-paid department of medicine. Consequently, hospitals, supported mainly by the community and supposed to be maintained for the benefit of the public, but in reality for the benefit of the hospital staff, have sprung up in almost every town of size in the country. The hospitals are controlled by the hospital staff, which constitutes a sort of professional oligarchy and the small fry are expected to be *chasers* to whom is delegated the

special duty of keeping the ward-beds full. Said small fry are denominated "assistants" to the "staff," whose special duty as "assistants" is to don cap and gown and with folded arms observe the operation at a safe distance, and who receive for their "assistance" a small per cent of the fee as commission for their services as *chasers*. Hence, any one seriously sick is at once told, "You must go to the hospital," and off he is hustled to the hospital.

Every pain below the diaphragm is diagnosed appendicitis, although Cabot, of the Harvard Medical School, says only about 40 per cent of the cases diagnosed appendicitis at the Boston General Hospital prove to be appendicitis. But the operation is a fee-getter and that after all is the principal thing. The interest of the patient is not in it at all. Four experienced physicians in a certain city recently diagnosed a case appendicitis which proved to be a bad pneumonia. How easy to be mistaken! How illusive are symptoms!

It would be interesting to know how many surgical operations would never be found necessary if it were not for the fee back of them. Did you ever know a negro to be operated upon for appendicitis? Or, an ovariectomy or hysterectomy done upon a lady of color? Why? Is appendicitis a white man's disease alone?

Thousands of ovaries (and appendices) have been removed which were not diseased; hundreds of hysterectomies done and scores of women mutilated and often condemned to lives of invalidism, which would never have been done, if no fat fees had been involved. A bright practitioner, on being asked the difference between acute indigestion and appendicitis, replied, "A hundred dollars." That states the case about right.

The net result of all this is that a well-founded prejudice has grown up among the laity against hospitals and hospital treatment and they have been driven to patronize the various drugless cults and advertising fakirs who know the value of printer's ink and use it to get business. Notice the chiropractic's enticing bait: "No medicine; no surgery."

Specialism in medicine is another potent agency by which the struggle of the average doctor to make a decent living from the practice of his profession, has been made more bitter. This is the day of specialism, we are told. To such an extreme has the idea been car-

ried, that, as some one has tersely said, there is little left for the general practitioner but a small ring around the umbilicus. To limit competition and to be able to demand larger fees are the dominating factors in the selection of a specialty. It sounds well, too, to be a specialist. Then the public have been taught to regard the specialist as something great and wonderful about which the common doctor knows nothing. Advertising quacks are quick to cash the idea as when "The Great New York Specialist," or "The Leading Chicago Specialist," comes to town.

Frankly, is there need for so much specialism? Let us see. Surgery from the very nature of the work is a specialty. But there is little special surgery that the thoroughly competent general surgeon could not do if he would. Ninety-five per cent of eye-work consists in correcting errors of refraction, fitting glasses, and treating common ailments that any all-around practitioner could do as well. The treatment of ordinary catarrh, with the occasional removal of adenoids, a nasal polypus, or an enlarged tonsil, make up the bulk of nose and throat work.

Chronic catarrhal deafness, which is incurable, suppurative ear conditions and a few minor troubles constitute the greater part of ear work. All of this work the general practitioner could do if he would, at a much lower cost to the patient than the specialist charges. Eliminate the big fees and the element of restricted competition and the specialty would cease to be attractive.

A new specialty is soon to be fostered upon an already over-specialized profession and a gullible public, if we may believe the press reports—a specialty in the art of "turtle serum" therapy, now being exploited in some of our great city clinics. Institutes for the special treatment of tuberculosis by the turtle vaccine method are to be established throughout the country, and placed in charge of "turtle serum" specialists, who will wax and grow fat at so much per, the fees to be regulated by the ability of the patient to pay and no charity cases to be treated. How does that sound from a humanitarian standpoint? How does that sound for a noble, unselfish philanthropy? The reputed discoverer of this wonderful agent is to receive as a placebo for the sacrifice he is making for humanity's sake, in cash and stock,

the pitiful sum of nearly two million good American dollars.

Moreover, it is by no means certain that the turtle serum treatment possesses any advantage over modern methods of treatment of tuberculosis, since efficacy is claimed for the turtle vaccine only in the first and second stages of the disease. Government tests of its value so far have not been satisfactory, and the "turtle serum" treatment of tuberculosis is generally condemned by the profession.

By and by, when turtle serum has had its little day, it will pass on to share the fate of tuberculin, "606", Roentgen ray, radium, the static machine and all the rest of that junk, and some other fake, designed to thrive on human credulity and to fatten on human despair, will be discovered and exploited for a time. And so it will be as long as time lasts.

One other class of fee-getting inventions, employed both by the regular profession and by fakirs and mountebanks to fleece the public may be mentioned. These include physio-therapy, hydro-therapy, electro-therapy, photo-therapy, light-therapy, mano-therapy and a score or more similar devices, each of which, like every other therapeutic measure, has its limitations and its own positive curative sphere, and only clear and careful discrimination, close observation and skillful application can determine the boundaries of the field for each measure. In skilled hands and in selected cases and conditions, they may be employed and may possibly possess some therapeutic value, if only from a psychological standpoint, but when applied indiscriminately by anybody, without regard to the nature of the trouble, they become mere fee-getters and fake advertising schemes.

When Dr. Sparks with his electric machine claims to burn the uric acid out of the body and to cure diabetes mellitus, a possibly useful therapeutic measure becomes a farce and a humbug.

Now, in the face of the conditions and hindrances which make against the average doctor in his efforts to earn a decent living from the practice of his profession, what shall we do about it?

"Whether 'tis nobler in the mind to suffer
The stings and arrows of outrageous fortune,
Or to take arms against a sea of troubles,
And by opposing end them?
To bear the ills we have
Than to fly to others that we know not of?"

How shall the doctor come into his own? By placing the practice of medicine upon a business basis like banking and other business enterprises. But that is another story.

TRAINED NURSES AND THEIR WORK.*

By HON. W. W. BAKER, Hallsboro, Va.

When Miss Ewald invited me to make a talk to the class of Graduate Nurses at Catawba Sanatorium, I at once accepted without realizing the amount of information necessary to be able to talk on a subject of which so little is known, in a manner that would be either creditable to myself or acceptable to those who would be expected to listen with any patience or pleasure. However, after having accepted there was nothing for me to do, but make the best of what information I could in the limited time secure. I tried the State Library, the Health Department of Virginia, and the Library at Washington, but have not been able to secure up-to-date information as to the work of the Trained Nurse during the past three or four years. The most valuable and most exhaustive work on the Trained Nurse which I have been able to secure is "A History of Nursing," by M. Adelaide Nutting, of Johns Hopkins Hospital, and Miss Lavinia L. Dock, of New York Nurses Settlement.

The frontispiece of this work is a most attractive engraving of Hygeia, The Goddess of Health, with the sacred serpent of her father, Aesculapius, the symbol of health, which drinks from a cup held in her left hand.

Nursing had its beginning with the first Mother, the hourly details of feeding, warming, and protecting from harm, the watching by night, laid the foundation for that more comprehensive work of the professional nurse of today. Dr. Withington, of London, in his "Medical History from the Earliest Times," says that "The witch and the medicine-man were the original doctors, who frequently used massage to pummel and drive out the evil spirit of disease."

Witches were believed to have the power of causing wasting sickness and other harm by a look, and even today there are many among our colored people who fully believe in the power of the witch to "trick" those who may fall under their displeasure. And all of us remem-

*Address to graduating class of the Catawba Nurses Training School, May 19, 1913.

ber with shame the history of the many old and young women who were tortured and burned and drowned under cover of law in Salem in 1692 in enlightened America. Dressing wounds, counter-irritation, and rubbing was understood by the women of savage tribes. Purgatives and sweat-producing teas were also understood by them. The ancient Holy Books of India give rules for the conduct of physicians and nurses. The latter must not only be pure in mind and body, but their duties thoroughly understood.

The ancient Persians provided hospitals for the sick poor, and in Egypt the medical writings date from 4688 years B. C. Dr. Klein, in his *Bulletin Amer. Acad. of Medicine*, 1906, page 320, says:—"An interesting relic of Egyptian medicine is the medicine chest of the wife of Pharaoh, Mentuhotep, 2500 B. C. It contains six vases of alabaster, and serpentine, dried remnants of drugs, two spoons, a piece of linen cloth, some roots, enclosed in a basket of straw-work. It was found in the Queen's tomb." Nurses, however, are not mentioned as a separate class, although women had a high standing in society, and it is probable that what is known as the "temple-women" or priestesses were nurses. The medicine of Babylon and Assyria seems to have been based on superstition. The Jews added to the hygiene they learned from the Egyptians, especially in reference to the purity of women, and the sanctity of the family life. They also had houses for the sick. In Greece the temples of Aesculapius were hospitals. They were limited to curable patients. The corridors were practically hospital wards. The priestesses are supposed to have been nurses. Bathing and diet was well understood.

Possibly the most wonderful and talented physician of ancient times was Hippocrates, whose writings date back to 450 B. C. and whose influence extended down to A. D. 350. The Romans borrowed all the science from the Greeks, and transplanted the worship of Aesculapius. They had to deal with typhoid and malarial fevers, and began to develop State hygiene, drainage and sewerage. Dispensaries and schools of medicine arose, and military hospitals were built. Claudius Galenus, commonly known as Galen, was born in Pergamus, in Mysia, 130, A. D., and was possibly the most eminent physician of his time, and the most voluminous writer. It is said that surgical in-

struments unearthed at Pompeii are the counterpart of some of the most recent in use today.

The history of the early church is noteworthy for the development of the activity of women in deeds of mercy and charity. The deaconesses naturally had to attend the sick in connection with their other duties. Phoebe is mentioned by Paul as a parish worker, or district nurse. It is said that this order of Christian women attained a high dignity and large membership. They extended through the whole Roman Empire. Later many of them took the vows of celibacy and were thus the forerunners of the modern sisters of charity. But the idea is not limited to Roman Catholic sisters, and is considered to have laid the foundation for the nurses' calling. From this period of Christian activity and freedom of hospitality began the true development of the hospital and other charitable institutions. In the 9th century there were in Rome twenty-four hospitals. From rooms in private houses at first (especially of the bishops and clergy), they finally developed into separate institutions.

The early Christians waged a noble warfare against the many plagues which occurred from time to time. Leper colonies were formed by them. In those days, too, as since, women were sometimes led by morbid enthusiasm to go into public service of this kind to the neglect of their private responsibilities. The history of monasticism contains the names of many men and women held to be saints on account of their renunciation of the world and devotion to the relief of the sick and sinful. But in many instances, monasticism as a system tends to selfishness and not to service. These men and women are of all nationalities and countries where catholicism has penetrated. So that we may conclude that nursing and institutions for the cure of the sick are a part of the history of the Christian world. One of the most remarkable women of the early centuries, whose records have been preserved, was Hildegarde, called the "Prophetess," the "Sybil of the Rhine," who was a nurse of the 11th century. It is said, however, that she was more conspicuous as a physician than as a nurse. The next chapter in the history of nursing is in connection with the Crusades. Not all of the women who followed the armies were religious, but some of them were enrolled in the orders who served in the military hospitals. They had

a distinctive dress and were in affiliation with the Knights Hospitallers. The hospitals under control of this order were well organized and served.

Many of the hospitals now existing in Europe had their beginnings back in the ages we have referred to. For example, there is today the famous Hotel-Dieu, of Paris, founded in 650 A. D.

When America was discovered, and the Spanish and French Catholics began their missionary labors here, they brought the hospital idea with them. One of those early institutions is now still to be found in the Hotel-Dieu, of Quebec: and in Mlle. Mance, who founded the similar institution in Montreal in 1640, we have a veritable early Florence Nightingale. In Mexico today the Spanish hospitals antedate even those of French Canada. The miseries of the Thirty Years War in Europe were the background against which stands out the beginning of the great work of Vincent de Paul and his Sisters of Charity. Their subsequent history has to do with the great battlefields of the continent down to the present day. Thirty of them have received the Cross of the Legion of Honor.

In Great Britain, we have the same heritage of the monastic and military nursing with the beginnings of the great hospitals, such as St. Bartholomews, founded in 1123. Likewise, the women of England have ever been as active as those upon the continent in their care for the sick. However, John Howard (A. D. 1750), the reformer of prisons, had fault to find with the various hospitals as compared with those of the continent. The reform in nursing in the 19th century, began with the foundation at Kaiserworth on the Rhine, by the Fliedners (husband and wife), of the Deaconess Motherhouse. This was a modern adaptation of the ancient order. This was in 1822. Theodore Fliedner went through Europe and to England studying hospitals and soliciting subscriptions for his parish work at Kaiserworth. Among his subscribers was the little girl, Queen Victoria.

It was to Kaiserworth that Florence Nightingale went in 1849 for three months training. She studied their methods and system and developed a genius for this work. She also spent a considerable time with the Sisters of St. Vincent de Paul in Paris.

As a youth of only ten years, after the death

of my mother, I was connected with the Danville Register newspaper, and while there, during the years of 1856 and 57, the names of two women were almost daily heralded throughout this country for their wonderful achievements. One was the great singer, Jenny Lind, and the other was Florence Nightingale, the renowned trained military nurse of the Crimean war.

Florence Nightingale was the daughter of William Shore Nightingale, of Derbyshire, England. She was born at, and named for the city of Florence, in 1823. She was highly educated and brilliantly accomplished, and at an early age exhibited an intense devotion to the alleviation of suffering, which in 1844, the year of my birth, led her to give attention to the condition of the hospitals, civil and military, all over Europe. It is said that she served an apprenticeship of ten years in preparation for her life work. At the outbreak of the Crimean War in 1854, she was put in charge of the military hospitals of Great Britain in the Crimea. At a time when dirt, pestilence, and death went hand in hand, she met the stupendous difficulties of her task with wonderful success. The "Lady-in-Chief," as she was sometimes called, warred single-handed with the horrible conditions surrounding these hospitals, against the incompetent bureaucracy of the engineering and medical staffs. She eventually reduced the death rate from 315 per 1000 to 22 per 1000. Her return home after the end of the war was marked by a great movement in England to establish a nurses training school, which resulted in the Nightingale Home and School at St. Thomas' Hospital, the precursor of what is found today in every well-established hospital.

In 1859 Henri Dunant began the agitation which resulted in the foundation of the Red Cross organization for the care of the wounded and sick in warfare. The first congress was called in Geneva in 1863. With this movement is associated the name of Miss Clara Barton, who for years, was the President of the American Branch of the Red Cross Society. Organized nursing in the United States dates from 1871.

The Red Cross Societies of the continent have taken prominent and energetic part in the development of nursing on a secular and systematic basis. As they undertook to be responsible for service in war, it became neces-

sary to train nurses. In order to do this it was necessary to command hospitals—therefore to build hospitals,—which performed thus a double duty to the community and to the larger and more important object, that of nursing the sick. Thus was initiated a woman's movement in gathering money first for hospitals, and then for training those who should minister to the sick.

The Red Cross Society was recognized by the treaty of Geneva, in 1869, which provided for the neutrality of hospitals among all civilized nations. Miss Clara Barton rendered signal service both in the civil war and in the war of 1871.

In America the Jesuit Fathers were the first Hospitalers. But in the United States, organized nursing really dates from 1871. Before that, however, we can go back to the first hospital in Philadelphia (The Blockley), and to the Bellevue, in New York City, which was begun in the 17th century. In 1658 the West India Company built a sick house which, combined with the church poor-house, became the forerunner of Bellevue. The present site was bought in 1794. These two hospitals passed through periods of inadequate management and subsequent reform. Many notable names of physicians and laymen are associated with this early history, among them, that of Benj. Franklin, and Dr. Valentine Seaman, and others. "In 1798 the New York Hospital organized and established in it the first regular training school for nurses, from which other schools have since been established." In a letter from Dr. Seaman framed with his portrait the above words appear.

In Philadelphia, the Friends were active in hospital work. In 1837 Dr. Jos. Warrington began the Nurses Society to control training, registration, and district work. A Nurses' Home was built in Philadelphia in 1849. The Woman's Hospital had a class of nurses in 1863. In 1873 the New England Hospital, in Boston, had a well-established course of lectures and training for nurses, and Miss Linda Richards, a graduate, received a certificate, and was known as the first trained nurse in the United States.

Going back to the time of the civil war, the sanitary commissions may be mentioned as having an important bearing on the welfare of the sick and wounded, taking the place which

in Europe had been filled by the Red Cross Society. The name of Dorothy Dix is connected with this period. The history of the leading hospitals and training schools, since the dates mentioned, has been that of gradual development, and in keeping with the great advances in the medical sciences.

So far as I can ascertain, the first attempt in this country to do special or systematic nursing and visiting tuberculosis patients in their homes, was made in Baltimore in the year 1899, not by nurses, but by women medical students, of Johns Hopkins University. Under Dr. Osler's direction, these students followed the consumptives to their homes, and there rendered such assistance and instruction as their limited opportunities afforded. In 1902 the Johns Hopkins medical students reported 726 cases of consumption in Baltimore. Dr. Osler says in the *Medical News*, December, 1903, in speaking of the treatment of tuberculosis, "In its most important aspects, the problem of tuberculosis is a home problem. The battlefield of tuberculosis is not in the hospitals or the sanatoria, but in the homes, where the disease is born and bred. Possibly not over two per cent can have the sanitarium treatment and climate, while ninety-eight per cent have to be cared for at home." I have been informed that the first systematic attempt to train young women as nurses in Virginia was begun by Miss Sadie H. Cabaniss, a graduate nurse from Johns Hopkins, Baltimore, who established and trained a class of young ladies in connection with her work at the Old Dominion Hospital, Richmond. It is recorded that Miss Cabaniss and seven friends from the Old Dominion Hospital established the Richmond Nurses Settlement for "Visiting Nurses," in 1901, which institution has grown and been instrumental in doing a most wonderful work among the sick of Richmond. Some one has hinted to me that possibly the managing nurse at Catawba is to some extent under obligations to Miss Cabaniss for instruction in the profession of the trained nurse.

At present professional nursing is organized into such associations as the American Nurses Association, National League for Nursing Education, National Organization for Public Health Nursing, Army and Navy Nursing Corps, and the various State associations in forty States.

There are laws regulating nursing in thirty-

three States. The first four to pass these laws were North Carolina, New Jersey, New York, and Virginia, in 1903.

The number of schools of nursing in fourteen States is 508. The number of registered nurses in thirty States is 32,972.

A recent report of the National Association for the Prevention and Relief of Tuberculosis states that the reduction in the death rate from this disease in the last ten years is twice the reduction in mortality from all other causes. This means a saving of 30,000 lives a year.

There are today 2,000 anti-tuberculosis associations. In 1911 new organizations were formed at the rate of one a day. Over \$15,000,000 a year is being spent in this direction by these agencies and in sanatoria, dispensaries and open air schools.

Possibly no physician or surgeon within the bounds of this State has done more to develop the efficiency of the trained nurse, and make them necessary to combat disease in all its forms, than Dr. Geo. Ben Johnston, of Richmond. So important has the skill of the trained nurse become that but few physicians or surgeons will consent to leave an ill patient, except in the hands of a thoroughly competent trained nurse. It might not be an exaggerated statement to say that "the one is of as great importance in battling against disease as the other."

A few years ago Dr. Williams determined to establish at Catawba a school for training young ladies as nurses to combat the disease peculiar to this institution. I have been much gratified to learn that they have acquitted themselves in a most creditable manner in the discharge of the responsible duties which come to them in their chosen life-work.

And now young ladies, Dr. Williams will soon be permitted to discharge a most agreeable duty, in making to this audience the declaration, that "By your earnest devotion to study, and constant attention to the rules laid down for your guidance, you are now entitled to the distinction of being created a "Graduate Nurse of Catawba Sanatorium," and as such qualified to battle with that scourge of all lands, "Tuberculosis."

In conclusion, before congratulations are in order, I beg to be allowed to suggest some additional qualifications that may be necessary for your most important life-work. And possibly the first is that of courage. So much has been said and written about the "consumptive ter-

ror" and about its communicable nature, that many shun a consumptive as a leper, but I am glad to be able to say that in consequence of the high standards of hygiene and sanitation practiced and taught daily in our modern sanatoriums, tuberculosis is no more to be dreaded than any other communicable disease.

The next essential as a successful nurse is that little thing that means so much in all walks of life, what we term "tact,"—to know what to say and when to say it. Possibly no trait is more valuable, and none should be cultivated more assiduously than that of being tactful in the sick room. Tact enables us to be cheerful and sun-shiny under the most trying circumstances, and prevents us from saying and doing those things that bring unnecessary sorrow or alarm.

Another most valuable quality is that of patience and gentleness of manner. How much better is it to be patient and gentle in our dealings with those who of necessity are under our control, than peevish and fretful! You know how easy it is to fret, but how much happier we are ourselves and how much happier are those we deal with, if we are gentle and patient in our dealing with them! But patience does not come as natural things; it requires constant watchfulness and constant restraint for us to have others say of us, "She is so gentle, she is so patient."

If, however, you neglect to cultivate all the other qualities which have been mentioned, there is one that is most essential in this as well as any other calling in life, and that is "love." It matters not how skilled you may be in your chosen profession, failure will in the end be your reward, unless you possess that greatest of all gems of character, the ability to love your fellow-man,—to be able to give to your patients that charity that "suffereth long, and is kind." No other remedies you can possibly give to your patients will bring greater relief to a diseased body or mind than the knowledge that you love them.

And last, and most important, in all your labors, if you neglect or forget everything else that you have been taught or I may have said, do not forget to "Trust in the Lord with all thine heart, and lean not unto thine own understanding. In all thy ways acknowledge Him, and He shall direct thy paths. Commit thy way unto the Lord, trust also in Him, and He shall bring it to pass."

Clinical Reports.

CASES OF CONGENITAL SYPHILIS.*

By E. P. COPELAND, M. D., Washington, D. C.

Since July 1st, 1912, among the patients presented for treatment in the out-patient service of The Children's Hospital, under my direction, our records show eight with symptoms justifying a diagnosis of congenital syphilis.

It is the relative infrequency with which this disease has been met in my own private practice, rather than the occurrence of anything unusual in the cases, that encourages me to present briefly the histories of this small series.

I am keeping in mind some of my own errors of omission when I venture to remind that commonplace symptoms are those that most often escape, not recognition, but observation, and I attribute such error to lack of thorough inspection of the patient more than any other shortcoming.

Case 1.—B. F., female, white, age 8 weeks. Complaint, "Cold" in head of 3 weeks duration. Father has nose and throat trouble and digestive disorder; mother living, good health; 3 miscarriages between patient and one healthy child now 8 years old. Normal birth, breast fed. "Snuffles" began at 3 weeks.

Examination.—Well nourished, no eruption, general glandular enlargement, pronounced "snuffles," liver 2 inches below costal margin.

Treatment.—Mercury with chalk, grain 1-4 every 4 hours. Rapid improvement.

Case 2.—E. H., female, colored, age 4 months. Complaint, "Cold" in head; duration questionable. Father? mother? second child. Normal birth, breast fed at irregular intervals, has 2 normal stools daily. Has had "snuffles" since birth.

Examination.—Well nourished, no eruption, general glandular enlargement, well marked "snuffles."

Treatment.—Protoiodide mercury, grain 1-10, t. i. d. Improvement.

Case 3.—G. C., male, colored, age 2 years. Complaint, "Breaking out on face and arms;" duration questionable. Nothing known of father; mother confined to bed, nature of illness not known; doubtful history of infant having

been cared for by girl with "sores on face and mouth." Has had peculiar eruption on face and arms together with sores on anus for past 3 weeks.

Examination.—Well nourished, bridge of nose depressed, serpiginous eruption on face at angles of mouth and on temples, symmetrically bilateral, condylomata at anus, general glandular enlargement. Liver $2\frac{1}{2}$ inches below costal margin.

Treatment.—Protoiodide mercury, grain 1-10 every 4 hours. Most rapid improvement.

Case 4.—H. C., male, colored, age 1 year, 2 months. Complaint, "Eruption on body," more or less since birth. Child in care of an aunt; doubtful history of parental syphilis. Labor normal, but infant had a "sore" on forehead at birth; breast fed for 1 month, condensed milk afterward. Dentition began at eighth month; 8 teeth erupted. Has had a peculiar eruption over various parts of the body since birth, together with "snuffles" and nose bleed.

Examination.—Has a serpiginous eruption symmetrically distributed over the cheeks, condylomata in left groin and at anus, general glandular enlargement, bridge of nose depressed. Liver enlarged, spleen not palpable.

Treatment.—Protoiodide mercury, grain 1-10, t. i. d.

Case 5.—R. W., male, colored, age 2 years. Complaint, "Eruption on body," duration questionable. Second child, no family history. Normal birth, good health until fourth month, when an eruption appeared on face, and eyes became "sore." Present illness dates to fourth month, when a papulo-pustular eruption appeared upon the face, spreading to the rest of the body. Shortly after the onset of these symptoms a strabismus was observed.

Examination.—Rachitis fairly well marked, poorly developed chest, prominent abdomen, pustular eruption over body (most marked on trunk), general glandular enlargement. Liver over 2 inches below costal margin, spleen not palpable.

Treatment.—Protoiodide mercury, grain 1-8 t. i. d. and cod liver oil.

Case 6.—J. D., male, colored, age 2 years. Complaint, "Swelling and sore on lower lip." Only child, negative family history. Normal birth, breast fed exclusively for 1 year; no previous illness. One week ago mother noted condition on lower lip and attributed it to an in-

*Reported to the Medical and Surgical Society of the District of Columbia, January 2, 1913.

sect bite, but no improvement followed home remedies.

Examination.—Well nourished, but rachitic, papular eruption over both legs, with scars from healed skin lesions. General glandular enlargement. Ulcerated, indurated swelling lower lip, eight teeth erupted, coated tongue, enlarged liver.

Treatment.—Mercury with chalk, grain 1-4 every 4 hours.

Case 7.—C. S., male, colored, age 11 months. Complaint, "Obstruction in throat;" duration 3 days. Family history negative; only child. Normal birth, early "snuffles," never exclusively breast fed. Dentition began eighth month. Three days ago mother noticed that infant made unusual noise when breathing, especially when asleep.

Examination.—Well nourished, of large size, pustular eruption discrete over trunk, enlargement of cervical, epitrochlear and inguinal glands, tongue coated, four teeth erupted, left tonsil enlarged sufficiently to produce obstruction, liver enlarged.

Treatment.—Mercury with chalk, grain 1-4 every 4 hours.

Case 8.—A. S., female, colored, age 3 months. Complaint, "Seems to suffer in hips when moved" past few days; had been diagnosed rheumatism. Only child; mother had had one miscarriage. Normal birth, breast fed, no previous illness. Mother noticed that child cried out when handled, pain seemingly in its legs.

Examination.—Fairly well nourished, general glandular enlargement, epitrochlears particularly large. Thighs rotated out, partially flexed, fixed by muscular rigidity. Liver enlarged, spleen not palpable.

Treatment.—Mercury with chalk had to be discontinued because of frequency of stools, mercurial ointment substituted, then protoiodide grain 1-10.

Course.—After one week sensitiveness about thighs had about disappeared, but there occurred an epiphysitis at the right shoulder joint, flaccid condition of the arm, with internal rotation simulating Erb's paralysis. Disappeared under continued treatment.

Grace Hospital has been awarded the contract, by Surgeon General Rupert Blue, to care for United States Army and Navy patients in this city.

Proceedings of Societies, Etc.

MEDICAL AND SURGICAL SOCIETY OF DISTRICT OF COLUMBIA.

Reported by L. C. ECKER, M. D.

This Society met March 13, 1913, Dr. Parker presiding.

Presentation of Pathological Specimens.

Dr. Hagner continued the report of the bladder case. On opening the bladder the ureteral forcep blade could not be found. The ureteral stone was removed, and the operation wound closed. Up to the present time there have been no bladder symptoms, and Dr. Hagner thinks the blade must have been passed. No recent picture has been made.

Case of Iodine Irritation.

Dr. Dunlop reported a case in which he used iodine to prepare a foot and heel for a tenotomy. Iodine carefully removed before the application of the cast. In a few days the pain necessitated the removal of the cast, when a large blister was found. Dr. Dunlop thinks this was due to the iodine.

Dr. Borden said that following the pre-operative use of wet bichloride and then the use of iodine, much irritation is caused.

Dr. Walsh said he had a patient showing a marked idiosyncrasy for iodine, a marked dermatitis following its use.

Dr. A. R. Shands read the essay of the evening, taking for his subject—

Treatment of Tubercular Osteitis of the Knee.

DISCUSSION.

Dr. Dunlop said the diagnosis of tubercular knee in adult is difficult. A number of resected knee joints at Johns Hopkins considered as tubercular joints turned out to be atrophic joints. This latter condition is usually not confined to one joint. The X-ray will show the disappearance of cartilage and the bone atrophy. Numerous cases of tubercular joints seen in Quebec. This is due to the unhygienic mode of living in one poorly ventilated room. Most cases will give a history of trauma. Question as to whether condition is secondary to the trauma. Treatment should be continued at least 6 months after disappearance of the last symptoms. In treating the deformities, Dr.

Baer of Baltimore is introducing chromicized pig's bladder into the point. More chance of getting motion with this treatment. Rest in bed with weights the best way to prevent deformities. If the soft parts are involved amputation is the operation preferred.

Dr. Kerr.—In old cases with abscess and destruction of bone with the subsequent pathological dislocation of the tibia, good results had been obtained by the application of the genu-clast, straightening the joint slowly, putting up in plaster; then to repeat.

Dr. Fremont Smith spoke of the injection of live bacilli in the treatment and the immunizing, and the possibility of Dr. Friedmann's claim being curative.

Dr. Hagner said differential diagnosis between tubercular joint and gonorrhœal knee may at times be difficult. He mentioned a case of gonorrhœal bursitis of knee, with a circumference of 26 inches.

Dr. Gwynn.—79 per cent of cases are secondary infections, so that it is very essential to treat the case constitutionally. In his experience the cases from the country offer a worse prognosis than the city cases. He offers the solution that the country patient would not acquire tuberculosis unless the resistance be much lowered. It is very hard to tell when a joint is cured. Thinks the tuberculin test is helpful. A negative test is positive. A reaction to a small dose might be safe.

In closing, *Dr. Shands* said he had used the treatment of Dr. Baer with remarkable success. In the use of the genuclast, he stated he had had much better results by manipulation under ether. Gonorrhœal arthritis is sudden in onset, while tuberculosis is slow. Always treats the cases constitutionally.

Dr. Hickling gave the history of a case of

Minor Epilepsy.

Dr. Evans asked, in consideration of the head injury, if the reflexes had been tested.

Dr. Dunlop reported a case of "Brown Study," or sudden short periods of marked inattention in a young girl; these persisted for a number of years, clearing up in adult life.

Dr. Hickling, in closing, said that all the reflexes were normal. Cases of so-called "Brown Study" were probably hysteria.

Adjournment.

Book Announcements and Reviews

The Semi-Monthly will be glad to receive new publications for acknowledgment in these columns, though it recognizes no obligation to review them all. As space permits, we will aim to review those publications which would seem to require more than passing notice.

Reviews of many valuable books have been unduly delayed because of lack of available space. To more promptly bring their issuance to the attention of our readers, we have determined on the above policy. For the next several issues, until our book review shelves have been brought up-to-date, we will devote this space chiefly to the announcement of books that have been received.

Surgery and Diseases of the Mouth and Jaws—A Practical Treatise on the Surgery and Diseases of the Mouth and Allied Structures. By VILRAY PAPIN BLAIR, A. M., M. D., Professor of Oral Surgery in the Dental School, and Associate in Surgery in the Medical School, Washington University. St. Louis: C. V. Mosby Company. 1912. Cloth, 8 vo. Pages XXV—638. With 384 illustrations. Price \$5.00.

Psychanalysis—Its Theories and Practical Application. By A. A. BRILL, Ph. B., M. D. Chief of the Neurological Department of the Bronx Hospital and Dispensary; Clinical Assistant in Psychiatry and Neurology, Columbia University Medical School. Philadelphia and London: W. B. Saunders Company, 1913. 8 vo., 337 pages. Cloth, \$3.00 net.

The General Practitioner as a Specialist—A Treatise Devoted to the Consideration of Medical Specialties; A Guide to the Development of Office Practice. By JACOB DISSINGER ALBRIGHT, M. D. Fourth edition. Revised, enlarged and illustrated. Published by the author, 3228 North Broad Street, Philadelphia, Pa. 1911. Cloth, 8 vo. Pages 467. Price \$3.00, prepaid.

Hygiene and Sanitation—A Text-Book for Nurses. By GEORGE M. PRICE, M. D., Director, Joint Board of Sanitary Control; Director of Investigation, New York State Factory Commission. 12mo. 236 pages. Cloth, \$1.50, net. Lea & Febiger, Publishers, Philadelphia and New York, 1913.

Golden Rules of Diagnosis and Treatment of Diseases.—Aphorisms, Observations and Precepts on the Method of Examination and Diagnosis of Diseases, with Practical Rules for Proper Remedial Procedure. By HENRY A. CABLES, B. S., M. D., Professor of Medicine and Clinical Medicine, College of Physicians and Surgeons, St. Louis. Second edition, revised and re-written. St. Louis: C. V. Mosby Co. 1913. 12mo. 318 pages. Cloth, price, \$2.25.

Progressive Medicine—A Quarterly Digest of Advances, Discoveries and Improvements in the Med-

ical and Surgical Sciences. Edited by HOBART AMORY HARE, M. D., Professor of Therapeutics and Diagnosis, Jefferson Medical College. Assisted by LEIGHTON F. APPLEMAN, M. D., Instructor in Therapeutics, Jefferson Medical College. Volume XIV, No. 4, December, 1912—Diseases of the Digestive Tract and Allied Organs, The Liver, Pancreas and Peritoneum—Diseases of the Kidneys—Genito-Urinary Diseases—Surgery of the Extremities, Shock, Anesthesia, Infections, Fractures and Dislocations, and Tumors—Practical Therapeutic Referendum. 381 pages. Volume XV, No. 1, March, 1913. Surgery of the Head, Neck and Thorax—Infectious Diseases, Including Acute Rheumatism, Croupous Pneumonia, and Influenza—Diseases of Children—Rhinitis and Laryngology—Otology. 361 pages. Volume XV, No. 2, June, 1913—Hernia—Surgery of the Abdomen, Exclusive of Hernia—Gynecology—Diseases of the Blood, Diathetic and Metabolic Diseases. Diseases of the Spleen, Thyroid Gland, Nutrition and the Lymphatic System—Ophthalmology. 449 pages. Lea & Febiger, Philadelphia and New York. 8vo. Paper. Subscription price, \$6.00 per annum.

Editorial.

The Solution of the Milk Problem.

"The Solution of the Milk Problem" is the title of a pamphlet recently issued by Dr. G. Lloyd Magruder, of Washington, D. C. The pamphlet is a good one for general distribution; while it gives little not known to the medical profession, it contains much information regarding milk useful to the producer and the consumer.

Milk is discussed under the heads of composition, and as a carrier and cause of disease; i. e. typhoid fever, septic sore throat, tuberculosis, diarrheal diseases, and malnutrition. Epidemics of diseases have been traced to contaminated milk.

Dr. Magruder explains how tubercle bacilli get in the milk, and gives the varieties and the sources of bacteria found in it. He states that milk of a tuberculous cow can be made safe by a proper amount of heat to the milk; therefore, a wholesale destruction of cows without compensation to the owner may, in a measure, be avoided. Methods of Pasteurization are also given.

The dairyman who equips and maintains his plant in a strictly sanitary manner, inviting official and public inspection, must be content to derive small profits; he must also increase the delivery price.

The use of condensed and evaporated milk is increasing to an alarming extent, by reason

of the increased cost of the original product.

Under an Act of Congress of March 2, 1895, the District of Columbia was the first place where milk was placed under legal requirements, so that no milk may be sold in Washington without a permit from the Health Officer, and that permit is issued only after an inspection of the farm, including an examination of the water supply. This permit is revocable upon discovery of insanitary conditions or the presence of communicable disease among the employees or on the farm.

The dairy inspectors and the farmers supplying milk for sale should understand one another; the farmer must know the matter is not one of personal prejudice when his sales are prohibited; he must know the law has been executed.

This pamphlet should have a wide circulation.

In every discussion of the milk problem, as it relates to malnutrition and diarrheal diseases in infants, there are certain things to be considered. The health of the parents is first to be questioned, for unhealthy parents, or those whose powers of resistance have been impaired by dissipations and excesses, can hardly be expected to produce entirely healthy children. Then the methods employed in transporting this milk must be ascertained, for milk will deteriorate in transporting just as well as in exposure to atmospheric conditions. The method employed by the housekeeper must be known since many employees will deliberately leave an open jar or bottle of milk in close proximity to the sink or the small refuse bucket seen in so many of our kitchens.

Milk must be kept under proper conditions if we wish to preserve it in the same state that it leaves the dairy, otherwise many of the legal requirements will show negative results, when examination is made of the milk found in our homes.

Again, only the fear of detection by law officers will frequently deter dishonest delivery men from filling bottles while they are driving their routes; in this instance, the dealer is held responsible and punished for an offense for which he is in no way responsible. It can be seen from this that many of the conditions in the solution of the milk problem arise after the product has left the farm.—L. E.

Accidents to Trespassers on Railroad Property.

The Virginia Legislature will convene in a few months. It is well to prepare ahead for bills to be considered. Commonly bills come up to all legislative bodies which, while important, carry with them a greater or less expenditure of money. Such bills make slow progress, because they rightly claim the utmost care and best judgment.

Perhaps the bulk of the measures projected for the good of the people are initiated by physicians; and it is a well known fact that physicians are the only class of folk subsisting on wages that day in and day out work to eliminate the very wages they have to look to for support.

But the matter herein advocated calls for no outlay of money on the part of the State. Yet it is a matter of vital importance to the State and to the people—and it is a matter of justice and just protection to one important and exceedingly useful industry of the State. Health and efficiency (producers) form the basis of strength of individual, community, municipality, State and nation. This is a self-evident truth.

Preventive medicine means the prevention of injuries as well as of diseases. The more clearly one sees the whole field of preventive effort, the stronger the conviction that all the problems are social problems and that they must be met by social remedies. The underlying responsibility of the conditions that cause diseases and lead to injuries lies with the people; and it is equally true that all the power and authority for bettering conditions and preventing injuries also rests with society and its accredited agents. Physicians can furnish the ground information as to how diseases and injuries can be lessened and abolished. Therefore, physicians can point out the way, but they must have the support of the public if any permanent good is to be accomplished. This support can only be reached when the public learns what is needed and why it is necessary. Hence public education becomes a requisite and interdependent factor in every movement for conserving health, limb and life.

The primary object of this paper is to call attention of the press and public to the ignorance and carelessness that leads to an astounding and unnecessary waste (preventable waste) of health, limb and life on the rights-of-way of the

railroads in this country and particularly in this State. It is estimated that about 12,000 persons, employees and others were killed and 111,000 maimed on our railroads in one year. Employees must occasionally be killed or incapacitated by accidents incidental to industrial life, notwithstanding the fact that every effort is being made by employers of the installation of safety devices, publicity bulletins and warning placards. By these means the number of accidents have been reduced.

But there is another and serious cause of disability and death, which has not been properly and adequately taken in hand. Of the 12,000 killed and 111,000 maimed on our railroads, perhaps the majority were trespassers on the rights-of-way of the railroads. In the writer's observation and experience, it is primarily the disregard for the rights of others, and secondarily of one's own rights that is the cause of *over three-fourths* of the enormous list of injuries unjustly credited to railroads. This extremely unsatisfactory condition has arisen from the lack of recognition on the part of the public of the fact that corporate property is practically and identically as individual as is individual property. The immediate cause of most injuries is the indifference and negligence on the part of workmen and trespassers themselves.

Municipalities and States which have statutes prohibiting trespassing on railroad property, seem to shut their eyes to the enforcement of any law that might exist. No private land owner is held responsible for accidents to trespassers on his property. Yet railroads are frequently forced to care for persons injured on their property and too often are they made to pay high damages for the personal ignorance or negligence of the person injured. Is this fair? Is this right? Is it not time to correct not only the liability to injuries but as well the abuse that too frequently follows injuries?

It is time for physicians to call attention to this item of prevention—as much a duty as it is for them to call attention to other kinds of prevention; for the producer is the only positive asset of any community. And it is the duty of every physician who reads this article to make this matter alive to every family in the range of his clientele; to hammer and hammer at it until the press and the women (our two strongest forces for good) twist our law-makers into

enacting such laws as will act as espionage and convict every trespasser on the property of railroads.

The Washington *Star* has led in many vitally important movements for the betterment of mankind, but not even its successful fly campaign of last year outstrips in importance its present active effort in lessening street accidents in Washington. And if the press of our State will follow the *Star's* laudable lead we will very quickly gain the interest and sympathy and confidence of the public in an effort to promote the prevention of accidents to trespassers on railroad property. *For be it remembered that over three-fourths of all accidents on railroads are accidents to trespassers on railroad rights-of-way.*

STEPHEN HARNSBERGER.

Medical Society of Virginia.

It is time that all members of the Medical Society of Virginia should begin to manifest an interest in the coming meeting to be held in Lynchburg, October 21-24, by urging all worthy doctors in the State who are not now members to send in their applications for membership.

The professional and business men of Lynchburg recently held a meeting and were enthusiastic and interested in the coming meeting. They will see that there are ample and good hotel accommodations, and will arrange attractive entertainment for the doctors and ladies accompanying them. Dr. George J. Tompkins, of Lynchburg, is chairman of the local committee of arrangements.

An attractive program is anticipated, several subjects for papers having been received by the secretary, Dr. P. A. Irving, Farmville. He and the president, Dr. Southgate Leigh, Norfolk, are bending their energies to make this a banner meeting and ask for the co-operation of each individual member.

Prevalence of Venereal Diseases in New York City.

While the Department of Health of New York City, in its *Weekly Bulletins*, gives figures to show that tuberculosis is year by year becoming less prevalent and less fatal in New York City, presumably as a result of the

work which is being done by the anti-tuberculosis campaign, venereal diseases are on the increase. From communications sent 7,000 physicians in Greater New York, asking for the number of cases of syphilis, gonorrhea and chancroid which had been under their care for the year 1912, the 2,215 physicians responding, reported 13,348 cases of syphilis, 24,980 cases of gonorrhea, and 4,431 cases of chancroid, or a total of 42,659 cases of venereal diseases in their private practice. It is believed that the number of institutional cases greatly exceeds those in private practice.

A Resolution Likely to be as Unwise as it is Unusual.

We note from two Canadian journals that the Montreal General Hospital, at its ninety-first annual meeting, held in February, unanimously passed the following resolution: "That from and after January 1, 1913, no person shall be allowed to continue service on the attending staff of the hospital as physician or surgeon to the in-door department, or as specialist, or as physician or surgeon to the out-patient department, or as assistant specialist, after having attained the age of sixty-two years." Is it jealousy, or an attempt to oust the older men because some of the younger members of the hospital staff have not as yet learned that many physicians at that age are at their best as a result of their vast experience? We should say from the notices which have reached us that it does not meet the approbation of Canadian practitioners as a whole, nor would it receive the sanction of the profession of this section.

American Medical Association.

In our last issue, we announced that Dr. Victor C. Vaughan, Ann Arbor, Mich., was made president-elect of the Association, and that Atlantic City was once again to be the place of meeting for the 1914 meeting. The vice-presidents elected at the Minneapolis meeting are Drs. W. P. Conaway, Atlantic City, Frank C. Todd, Minneapolis, Lillian H. South, Bowling Green, Ky., and Sol. G. Kahn, Salt Lake City. Drs. Alex. R. Craig and Wm. A. Pusey, both of Chicago, were re-elected secretary and treasurer, respectively.

The Medical Society of the State of North Carolina

Held its sixtieth annual meeting at Moorehead City, June 17-19, Dr. J. P. Munroe, of Charlotte, presiding. Dr. J. M. Parrott, Kingston, was elected president for the ensuing year, Dr. John R. Irwin, vice-president, and Dr. John A. Ferrell, Raleigh, was re-elected secretary. Drs. M. L. Stevens, Asheville, and K. P. B. Bonner, Morehead City, were elected president and secretary, respectively, of the North Carolina State Board of Health, which met conjointly with the State Society.

American Medical Editors' Association.

New officers elected at the Minneapolis meeting last month, are Dr. E. A. Vander Veer, of *Albany Medical Annals*, president; Drs. H. Edwin Lewis, of *American Medicine*, and Seale Harris, of *Southern Medicine*, vice-presidents; and Dr. Jos. MacDonald, Jr., of *American Journal of Surgery*, re-elected secretary-treasurer.

Milk Stations in New York.

In addition to the seven milk stations kept open in New York City throughout the year, by Mr. Nathan Straus, nine were opened for the summer months.

Medical Examining Board of Virginia.

There were a few over a hundred applicants to practice medicine in some of its branches to appear before the State Board which met in Richmond, June 24-27. Most of these were recent graduates, and there were three women in the number. The next meeting of the Board will be held in Richmond, December 16-19, 1913.

Dr. J. Gordon Rennie,

Of Petersburg, Va., sailed for Germany, July 8. While in Europe, he expects to visit clinics in Vienna, Leipsic, London, Paris and Edinburgh.

Lt. B. B. Warriner, M. C.,

U. S. Army, a son of Dr. William T. Warriner, Crewe, Va., has just been transferred from

Army Medical School, Washington, to Fort Williams, Cape Cottage, Maine.

Dr. Benj. E. Washburn,

Rutherfordton, N. C., a graduate of the University of Virginia in class of 1911, has recently been appointed one of the field inspectors in the hookworm work in North Carolina.

Typhoid Situation in Richmond.

There were forty-one new cases of typhoid fever reported in this city during June against eighteen for the same month in 1912. There were, however, only six deaths from this disease, in spite of the fact that the 277 deaths reported was the highest mortality in this city for any one month in several years.

The Association of Surgeons of the Army and Navy of the Confederacy,

At its annual meeting in Chattanooga, in May, selected Jacksonville, Fla., for the next place of meeting, and elected the following officers: President, Dr. A. A. Lyon, Nashville, Tenn.; vice-presidents, Drs. Geo. M. Burdett, Lenoir City, Tenn., J. C. Hall, Anguilla, Miss., E. L. Deaderick, Johnson City, Tenn., and Carroll Kendrick, Kendrick, Miss.; secretary-treasurer, Dr. Stephen H. Ragan, Kansas City, Mo.

Dr. James Tyson,

Emeritus Professor of Medicine, University of Pennsylvania, was recently presented, by the Northern Medical Association of Philadelphia, with a loving cup in honor of his fiftieth year in the medical profession.

Doctors Elected to City Offices in Richmond.

The Richmond City Council, at its meeting July 7, re-elected Drs. William T. Oppenheimer and M. D. Hoge, Jr., members of the City Board of Health, and Dr. Wm. H. Parker as a member of the Board of Police Commissioners; and elected Dr. J. Morrison Hutcheson a member of the City School Board *vice* Dr. Lawrence T. Price, resigned.

Dr. William E. Harwood,

Of Petersburg, Va., has been re-elected a member of the School Board of that city for a new term beginning July 1.

Further Honors for Dr. Horsley.

In connection with the honor conferred by the A. M. A., upon Dr. J. Shelton Horsley, of this city, to which we called attention in our last issue, he was further honored while in Minneapolis, by being invited to demonstrate his method of suturing blood-vessels at the University of Minnesota Hospital, and afterwards at the Mayos', where he was also invited to do a transfusion of blood. In both places, he used the suture method which he has originated.

The Staunton (Va.) City Council,

At a meeting July 1, elected Dr. W. S. Whitmore as health officer, and re-elected Drs. J. B. Catlett and H. H. Henkel members of the local Board of Health.

Pure Food and Drugs Act to Apply to Meats.

Meat and meat products having through some technicality escaped the Food and Drugs Act adopted in 1906, the law was in June so extended that all manufacturers of meat products will at once be forced to comply with the restrictions of the Pure Food and Drugs Act as well as with the meat inspection laws.

Dr. Frank W. Lewis,

Of Whealton, Va., has been reappointed superintendent of public schools of Lancaster and Northumberland Counties.

Dr. G. T. Collins,

Of Highland Springs, Henrico Co., Va., is much improved since his return from Ocean View, where he went after his recent illness.

Additions to Two Hospitals.

An addition to cost \$175,000, the chief feature of which is to be a maternity ward, is shortly to be made to St. Luke's Hospital, St. Louis. The Maryland Hospital for Insane, at Catonsville, Md., is also to have a new building to cost \$75,000, which will accommodate one hundred additional patients. Work is already in progress on the last named.

New Ward for Colored People at City Hospital, Richmond.

The amount of \$5,000 has been appropriated for the purpose of building a ward for contagious diseases for colored people at the City Hospital, in Richmond. This will be the first provision made in this State for the exclusive

care of colored patients suffering with tuberculosis or other contagious diseases.

Dr. Musser's Memory Honored.

A bronze tablet in memory of the late Dr. John Herr Musser has been presented to the University of Pennsylvania Hospital. It was designed by Dr. R. Tait McKenzie.

Dr. Wilson E. Driver,

Norfolk, Va., head of the movement in Virginia for the study and prevention of malaria, went to Washington, early in July, to confer with Dr. Craig, of the U. S. Public Health Service relative to inaugurating a campaign in this State for the elimination of malaria.

Dr. A. L. Walters

Became connected with the Department of Experimental Medicine of Eli Lilly & Co. in July. Dr. Walters is a graduate of Purdue University with a degree of B. Sc. in 1904, and spent the four years following his graduation in the Botanical Department of the Lilly Co. In 1908 he resigned to enter the medical department of Johns Hopkins University, and received the degree of Doctor of Medicine in 1912, since which time he has been engaged in hospital work as an interne at the Providence City Hospital, R. I., and at the Johns Hopkins Hospital, Baltimore. He is also a graduate pharmacist, and is especially qualified to carry on work in experimental medical lines.

Disposition Made of Virginia Hospital.

The building formerly used for Virginia Hospital, in this city, and run under the auspices of the University College of Medicine, has been adopted as a Nurses' Home to be used in connection with Memorial Hospital, with which Virginia Hospital was consolidated.

Lt. H. C. Maddux, U. S. Army,

Left Orange, Va., June 25, for San Francisco, California.

Playgrounds in Norfolk, Va.

An appropriation has been made for the establishment of public playgrounds in Norfolk. Equipment is being installed as quickly as possible, and the playgrounds will be kept open through September.

Asst. Surgeon J. B. Helm, M. R. C.,

Of the United States Navy, has been ordered to the Navy Recruiting Station, Richmond, Va.

Dr. William L. Gatewood,

Petersburg, Va., formerly connected with Central State Hospital, left the first of July for New York, where he expects to take a special course in the study of eye, ear and throat diseases.

New Public Baths for Richmond.

A new public bathhouse, which cost approximately \$40,000 exclusive of the lot, was opened for general use the first of this month, on West Main Street, near Laurel. This is the second donation of this kind made by Mr. John P. Branch to this city. There were 52,652 baths taken at the other public bath in this city, during the last fiscal year.

Smallpox in United States in 1912.

During 1912, there were reported in the United States 8,850 cases of smallpox, with 81 deaths, during the first quarter; 5,734 cases, with 53 deaths, during the second quarter; 2,070 cases, with 58 deaths, during the third quarter; and 5,422 cases, with 43 deaths, during the fourth quarter. These reports came from the District of Columbia and thirty-two States.

The Kansas Medical Society,

At its annual meeting in May, selected Wichita as the place for the next meeting, and elected Drs. M. F. Jarrett, Ft. Scott, and Chas. S. Huffman, Columbus, president and secretary, respectively.

Obituary Record.

Dr. Durus Desmus Carter,

Of Woodstock, Va., died June 22, after a short illness, though, as a result of Bright's disease, he had been in poor health for some time. Born in Hancock, Md., April 25, 1847, he studied medicine at Jefferson Medical College, Philadelphia, from which he graduated in 1868. Since then, he had spent most of his time in Woodstock. He moved to Washington, D. C., in 1898, but after a few years returned to this State, and had, for a number of years, been known as one of the most prominent, as well as

one of the most beloved of the physicians in the Valley of Virginia. He was for a number of years health officer of Woodstock, and president of the Shenandoah County and Shenandoah Valley Medical Societies, as well as a member of the State Society. A large number of friends mourn his death. His widow and four children survive him.

Dr. Pride J. Thomas.

Oldest son of Dr. G. G. Thomas, chief surgeon of the Atlantic Coast Line Railroad, died suddenly, as a result of heart trouble, at his home in Wilmington, N. C., June 25. He was born in 1875, and received his medical education at the University of Maryland, Baltimore, from which he graduated in 1902. He was exceptionally popular in both professional and social circles in his section.

Dr. Robert S. Young,

A prominent physician of Concord, N. C., died suddenly in his automobile on the way to Salisbury, for treatment, June 18th. He graduated from the New York University Medical College, in 1881.

Dr. Frank Tryon Meriwether

Died at his private hospital, in Asheville, N. C., June 12, following an operation for appendicitis. He was born in Louisville, Ky., in 1865, and received his medical diploma from the University of Louisville in 1886. After practicing his profession in Louisville for a few years, he entered the United States Army as assistant surgeon with the rank of lieutenant, but retired from the service in 1896 on account of his health. He then located in Asheville, where he had since practiced, and was esteemed as one of the most prominent and beloved surgeons in that section.

Dr. J. Maurice Vaughan,

A highly respected negro physician of South Richmond Va., died June 15, as a result of a self inflicted bullet wound. It is believed that nervous breakdown and continued bad health since, caused him to commit the deed. He was a native of North Carolina and had taken a B. A. degree from a colored college in that State, and graduated in medicine in 1900 from Howard University, Washington.

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HABIT: A MANIFESTATION OF PERSONALITY.*

By JAS. K. HALL, M. D., Richmond, Va.
Westbrook Sanatorium.

Two great dominant motives impel man in all his activities: to preserve himself and to perpetuate his kind. Life in an environment, often inimical, necessitates adequate prehensive and defensive means—an arrangement by which he may take to himself that which is beneficial and ward off that which is harmful. The so-called special senses are designed to enable him to acquire the necessary amount of knowledge about his environment, and nervous control of the muscular mechanism affords at all times a means by which he may appropriate from his surroundings those things which appeal, and reject those things which he thinks may be harmful.

Man, however, does not stand alone in the exhibition of a highly organized nervous apparatus. Comparative anatomy reveals to us the fact that many of the so-called lower animals present a neural mechanism scarcely less complex than that of the human species. Notwithstanding the structural likeness, however, between the nervous system of mankind and that of many species of the orders next below him, the obvious fact is held plainly before our eyes every day of our life that in the mental sphere an impassible gulf exists between mankind and all other living things, with the result that our egotism may easily seem justified in believing that we are the "paragon of animals" and are made only a "little lower than the angels."

Whether or not changes in structure and size

*Read before the Richmond Academy of Medicine and Surgery, June 10, 1913.

and complexity of arrangement in the neural elements have taken place in mankind during historic ages I do not know, but the manifold and complex activity of each of us in the daily life is sufficient proof of the almost incomprehensible degree of development that has been attained by the human mind. Mental processes and the activities of lower animals probably undergo little perceptible change age after age. Orders even next below human kind are probably unable consciously to produce changes in environment. Mankind, however, by the exhibition of a superior wit, brings into subjection other living things around him, and by directing their activities and by guiding the controllable forces of nature he is often able to make perceptible local changes upon the face of the earth. He alone, too, is able in large measure to adapt himself to unavoidable changes in environment and to live in spite of organized elemental and animal warfare against him.

Circumstances in the ages gone by may have been such that it was possible for man to pay conscious attention to each of his acts. The numerous duties of modern daily life, however, no longer permit of such a possibility. Just as the head of a great industry sits at his desk and attends to the larger duties, leaving to subordinates details too small for his time and attention, just so the modern individual's mind must consciously perform the more troublesome problems of daily life and leave to the lower nervous agencies, so to speak, the more or less unconscious performance of minor details. But just as the successful head of a great industry must have reached his place of eminence by learning to do the work later done by each of his subordinates, so must the individual's mind have gone through the process of conscious direction of those details which are afterwards done almost without its awareness.

Let us tarry for a moment to impress again upon our minds the fundamental factors in the development of habit-action. Application of a stimulus in the proper place and manner begets in the new born a pure sensation. Repeated sensations result in experience, and out of experience arise percepts and concepts and knowledge. In early mental life all sensations are probably given conscious attention. Later in life these sensations become so numerous that the mind does not have time to attend to each of them. The faculties of attention and interest are developed and only those sensations are taken consciously into account which need modification or suppression.

Happy is he who can go through most of the day's work without giving to the details as they occur all of his conscious attention. All of us know, as a matter of fact, that most of the activities of the day are performed rather automatically, and many of them almost without our being at the time aware of what we are doing, or at least aware of how we are doing it. In the morning, at a certain hour, a man gets out of bed, bathes, shaves, dresses, breakfasts, goes to his daily work, and goes through with most of it without calling into play the higher mental processes. Habit.

And what is this habit? Something? Nothing? Both. It is of itself nothing: only the expression, the manifestation, of underlying potentiality. So often we look upon the effect, and are placidly content to remain in ignorance of the cause. Is not habit a sort of high-toned reflex? Is not the provoking stimulus calling forth most of these habit-actions external? And is not habit in us the more or less uniform expression of stimulation of some special part or parts of the nervous mechanism; and in the universe at large is it more than the manifestation of Law? and orderliness, even though that order be looked upon occasionally as disorder. Gravity as displayed habitually around us keeps the worlds in place; and it also brings to the ground the snow-flake, and the flying machine, and the apple; and it produces the roaring torrent at Niagara.

Habit of itself is neither good nor bad. It is only a manifestation of an underlying cause, and whether the habit be looked upon as good or bad its purpose is usually beneficent, and, as a rule, it is the result of the activity of a defense mechanism. Similar mechanisms, de-

fensive in purpose, in the beginning, often, as a result of over-action, and lack of control, become inimical to the organism in the end. The pleural liquid exudate is one result of the effort to wash away the irritant; but the reaction may be carried to such an extent as to endanger life by mechanical embarrassment of lungs or heart. Circulatory engorgement from a number of different causes may relieve itself by the accumulation of ascitic fluid—a process in origin beneficent—but if the process be not controlled its over-action may be fatal. Pain, the helpless creature's call for relief from suffering, may harass to the death.

Chance exists in this world of cause and effect and law and order only in a science so exact as mathematics. An accident, in the exact sense, is unknown. A bad habit, so-called, does not arise *de novo*. In ages gone by, and still among certain races, the individual's defense-effort against pain and sorrow and disease and misfortune manifested itself in a certain sort of mute stoicism. At other times, amongst other individuals, it showed itself in various ways. Jesus fasted in the wilderness, and John the Baptist lived for a period of time on locusts and wild honey.

Habit is the result of nature's effort to do the less important and the less complex things automatically, in order that the whole attention may be given to the more important and the more complex. It graciously tries to save mental and nervous wear and tear. As a rule, habit is, like charity, kind; it suffereth long and is not puffed up, but occasionally it behaves unseemly and even seems to rejoice in its iniquity.

Modern man's effort successfully to exist is beset with greater harassments than was his primitive ancestor's. Comforts and conveniences call for heavy expenditures with resulting stress and strain to make both ends meet. Universal education, while better equipping each individual for the struggle, also places in the hands of each one's opponent better weapons for the fray. Consequently, the weak may feel at first justified in resorting to extrinsic means in an effort to bring themselves up to the level in efficiency of the stronger.

Feeling is the dominant factor in the formation of so-called bad habits. No one is willing to confess himself inadequate; therefore, against his judgment, he takes what he believes will increase his efficiency. It is the personal

effort to aid nature in her purpose to keep us in forgetfulness of ourselves—our aches and pains and sorrows and disappointments—that we may give to the work in hand our whole soul. The individual is in search of something with which to change his feelings. His own desire for comfort cries out against this slough-of-despond existence, or else, realizing his inability in his present state of feeling to do the work in hand, he resorts to stimulation, thinking each time that another such crisis cannot arise. Judgment gives way to feeling. Socrates was right; all wrong originates in ignorance.

After awhile his feelings, normal or abnormal, dominate him, and he walks in bondage to their mandate. But the law of compensation holds even here to a certain extent at least, and for that which has been lost something has been gained. The replacement of one state of feeling by another temporarily more desirable has in more than one instance enriched the world's literature by the publishing forth of experiences that could not otherwise have arisen. The wickedness of David finds contrite confession in his prayers; Solomon, his son, could scarcely have written so complete a guide to human conduct in his proverbs had he himself always walked in the paths of righteousness. Charles Lamb, De Quincy, Poe, and Daniel Webster, under the influence of narcotics, so lifted inhibition and so stimulated intellectual activity as to leave behind imperishable evidence that in their opinion at least the end often justifies the means. But the modern imitator, conscious or unconscious of these great names, usually writes his name, not on Fame's scroll, but in the admission book of a hospital or a sanatorium.

What, then, is to be done? Let us treat the individual, and not the individual's method of treating himself. Let us realize that sensory impulses are pouring into the central nervous system always, and that these impulses must find outlet through the motor apparatus. Few of them can be suppressed, but they can be shunted here and there and yonder, controlled and changed in various ways, so that their expression may not be so harmful to the individual and to society. Proper expression of the feelings is to be inculcated, instead of control by the feelings. Simply withdrawing the alcohol, the drug, tobacco, or the hot water bag does not take away desire for these things. With

all these things swept out of existence there would remain the neurotic individual—dissatisfied with existence, and clamorous for a better state of feeling. Alcoholism and drug addiction are diseases no more than is dropsy or pruritus or desquamation.

The problem for us to solve is to find out whence come these bad feelings which the individual is trying to hide with whiskey or opium, or by one of a thousand other means, and to teach that individual some less harmful way of giving expression to his feelings. Feeling does not arise without adequate cause, and it can probably be suppressed to small degree, but it can be governed and directed just as energy can be, and it is our duty to teach our patients how to save themselves from themselves. Causes may be in force which arose in childhood, or even generations ago. Genuine radical changes in character are probably unknown. St. Paul after conversion was no more zealous than Saul of Tarsus; Peter remained hot-headed and impulsive to the end: each, however, was taught how better to give expression to his zeal. The reformation of the average individual, sound in body, who is in the clutches of the drug or the alcoholic habit can be brought about only in small degree by physical means.

The complexities and the stress and strain of modern life are telling more and more day by day. Personal dissatisfaction and unrest fill the world. Relief is sought in this way and in that. Eddyism affords temporary comfort to a number; the Emmanuel movement rises; the Progressives have found a political panacea; the initiative and the referendum, we are told, will make office holders virtuous; the suffragettes are storming the streets; prohibition has swept the country, and yet more whiskey is consumed each year: the sale of narcotic drugs is restricted, yet the number of habitues is steadily increasing, and the most ignorant negro procures cocaine without trouble; the mighty hand of the government is laid upon the great tobacco trust; with what result? The price of crude tobacco rises, dividends are larger, and more and more men smoke and chew. What do all these things mean? They mean that you and I are dissatisfied with our state of feeling and that we are in search of that which may change it. We are seeking relief from the awful tension, but the method

which brings temporary surcease may bring eventual destruction. In origin, Christian Science, morphinism, the suffragette movement, alcoholism, are all the same. The multiplication of laws does not deter from wrong-doing. Individual regeneration will not come by legal enactment. It must come from within. To you and to me, as physicians, is given the duty both by example and by teaching, of leading the children of unrest back into the green pastures by the still waters.

THE PATHOLOGY AND DIAGNOSIS OF APPENDICITIS.*

By F. H. SMITH, M. D., Abingdon, Va.
Physician-in-Charge, Abingdon Hospital.

Aside from purely scientific interest, clinicians are interested in the pathology of any condition solely from the practical standpoints of diagnosis and treatment. Hence, in discussing the pathology of appendicitis, I do so purely as a clinician—what pathology one should be able to predicate from experience,—leaving the refinements of pathological description for the ultra-scientific.

The appendix, in whose structure is a larger quantity of lymphoid material than in any other portion of the alimentary tube except the tonsillar region, whose blood-supply is terminal and comparatively sparse, yet whose lymphatic circulation leads directly from the inflammable mucosa to the sensitive peritoneum, communicating thus directly with the portal system, and thence with the general lymph-circulation, is a trap lying at the bottom of the body's cess-pool, hanging free in the abdominal cavity. Such is the devil's own territory—the inflammable structure of lymphoid tissue; the laboratory of igniting material of the germ-infested cecum, communicating through an open trap-door; the direct pathway for the spread of infectious fire, through the direct lymph-paths; the poverty of inflammatory fighting apparatus, the leucocytic blood-stream; and, finally, the sensitive membrane and glandular tissue, a sacrifice to spreading conflagration.

In a clinical sense, I believe that such terms as simple, catarrhal, suppurative, perforative, gangrenous, etc., are unfortunate from two standpoints: 1. They seem to refer to different kinds of disease; 2. Unfortunate results occur

from the impression that mild or moderate symptoms indicate a milder form of disease, whereas the truth is the most serious pathological states may be present when the symptoms are practically wanting.¹

From the practical standpoint, on the other hand, we do well if we can picture the path of acute appendicitis as it progresses from:

(1) Infection limited to the appendix itself;
(2) Infection involving surrounding structures;

(3) Infection of remoter tissues;
for to my mind this is the crux of the practical management of the individual case.

It may be assumed that all appendicitis begins in the mucosa, that is, catarrhal, if you please: but it must be a rare case that comes to operation with all of the pathology confined to the mucosa. I think I have seen acute appendices in which there was not already some involvement of the peritoneal coat; but all must admit that they are very rare, and hence the diagnosis of catarrhal appendicitis must rest merely on the belief that only the mucosa is involved: a frail prop.

But intimate acquaintance with the living pathology of the operating table justifies one practical pathological dictum: the case is rare and virulent where infection has extended beyond the confines of the appendix within the first 36 hours of inflammation, unless it has been tampered with.

After that time one usually finds the inflammation subsiding, or advancing beyond the confines of the appendix itself, and hence entering upon its second phase:

(2) Involvement of the Surrounding Structures. At first the peri-appendiceal involvement is of the folds and fossae in the immediate neighborhood. It may consist of a slight fibrinous exudation, or a little serous effusion. If of low virulence, the process may advance no further than more or less extensive and more or less firm agglutination of one peritoneal surface to the other: the pathology which we palpate when we make out the so-called "inflammatory pone" of which we hear so much nowadays: and a valuable expression it is, for, if palpated, it means that the infection is no longer appendiceal entirely, but peri-appendiceal as well. This "pone," whether it is ever palpated or not, subsides with its residue of adhesions; or, I believe, under proper manage-

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ment, and in the absence of pus itself, may melt away to leave as clean a peritoneal surface as if there had never been any involvement of the peritoneum at all. Or, in the event of more intense infection—intense by nature or rendered intense through faulty treatment and mismanagement—the process does not stop here; exudation becomes greater in amount: and more or less well localized abscess formation occurs, between the appendix and neighboring intestinal coils, or abdominal or pelvic walls (the peri-appendiceal abscess).

The “lay” of this abscess may be as varied as of the appendix itself; by no means is it always palpable, and it may be possible only to guess at its location. Its walls are formed by neighboring peritoneal-invested organs, with two structures pretty constantly in evidence,—the omentum thrown around it, and the appendix lying sunk somewhere in the mass. Or, because of extreme virulence, naturally or artificially rendered virulent, creating early disintegration of tissue and sparsity of agglutinating fibrinous exudation, sudden extensive perforation may occur, rendered more probable by the pre-existence of concretions within the appendix; and these rapid perforations occur in advance of limiting adhesions, and one is face to face with a more or less widely spread peritonitic process, either frankly suppurative, or, more ominous still, dry as bone.

(3) Involvement of Remoter Structures: All infection exposes one to the danger of cloudy swelling of remote organs, and appendicitis is no exception. Myocarditis, endocarditis, nephritis, and the whole list are within the range of possibility. But, more particularly, because of its portal connection, appendix inflammation is liable to give rise to thrombosis of that system. Septic thrombosis of appendicular venules is perhaps the rule: fortunately involvement of the larger radicles of the portal system is rare,¹ for if we always recognize it, it is practically hopeless. Through it comes mesenteric infarction, portal thrombosis, pyemic abscess of the liver, and general septicemia.

Chronic Appendicitis: In certain measure a justifiable term, in that it represents at times the smoldering remains of past fire; but oftener what is called chronic appendicitis is the result of an acute attack or a series of acute inflammatory attacks: the deformity of scars—the charred, twisted, bent and adherent remains of

former attacks, furnishing most of the cases of the so-called relapsing appendicitis, and, as with all scars and deformities, though not so immediately threatening to life, are attended with constant annoyances and crippling of the capacities of the system to which they belong: so with chronic appendicitis.

Diagnosis: Thanks to constant discussion such as the present one, the diagnosis of appendicitis in its acute stages is now pretty generally accurate. One pitfall, it seems to me we do not always escape, and I think it is true of hospital men more often than of men in private practice, is the unfortunate tendency of calling every abdominal ache and pain appendicitis, unless there be clear evidence of some other disease: a fault of jumping at conclusions on the basis of probabilities without taking time or effort to reach conclusion by elimination, through which process most diagnoses must at the present day be reached. But, however regrettable and destructive to accuracy of thought and practice all such hasty diagnoses may be, it by no means approaches in dangerous consequences the more frequent error of the general practitioner: namely, of first giving a thorough purge on the theory that the condition is merely a belly-ache, unless it fails to clear up, in which event a more accurate diagnosis may be attempted. Such “therapeutic tests” are responsible for more virulent cases, I believe, than appendicitis itself.

The diagnosis of acute appendicitis may be very easy or it may be practically impossible with the means of diagnosis at hand. And I venture the assertion that, as with all diagnoses, the more we see of appendicitis, the more humble we become as to our diagnostic ability.

As Dr. Murphy emphasizes in his clinical lectures, none of the symptoms and signs, nor any combination of them, is diagnostically differential of acute appendicitis. It is their orderly sequence alone which is diagnostic. First, pain—and pain is always first, the primary symptom. “It is pain, nausea and vomiting, local sensitiveness, elevation of temperature, and increase in the number of leucocytes. Nausea and vomiting never precede pain, nor does temperature precede pain in appendicitis.”²

Fever and quickened pulse-rate are valuable, if positive, but should never lead one to ques-

tion the diagnosis if absent: one may miss connection with them.

It seems to me it is wasting valuable time and effort to make a distinction as to the character of the inflammation. I deem myself fortunate if I am able to say whether the disease is still confined to the appendix, or, if not, the extent of the peri-appendiceal involvement.

As stated earlier, one rule of pathology seems practical and safe: If the patient is seen within the first 24 hours certainly, or within the first 48 hours usually, inflammation is very apt to be still confined within or to the appendix. From a practical standpoint, I venture no further: for, though infringing on another's territory, I take this as an indication as to whether or not to advise an immediate operation, or the reverse.

If, however, even within the first 48 hours, there is any definite mass to be palpated, the disease is no longer simply appendicular: and there certainly are cases, I admit, as rare as they may be, when from the very start symptoms of grave prostration and an ominous blood picture lead one to guess that from this moment we are dealing with a general septicemia, with localization in the appendix, just as we have all dealt with a pneumococcal septicemia, with or without signs of consolidation in the lung.

After the first 48 hours, symptoms and signs in the ordinary case, if not purged, ought to be subsiding; or sooner or later one ought to be able to make out a mass, usually. Every mass felt is not an abscess by any manner of means: oftener, it may be, there is no pus in the mass, but simply an agglutination of neighboring structures brought together by nature. if given a chance, to hold any escaping infectious material within bounds: an "inflammatory mass," or "pone." Such a distinction is a necessary one, for pones will subside cleanly if let alone, so that the appendix later can be removed without drainage, whereas the pus of an abscess, certainly if in any quantity, must escape in some way, spontaneously or surgically: and the risk of escape in the wrong direction is great enough to necessitate deliberate evacuation in the chosen way.

But the distinction between the "pone" and the abscess is not always as easy as it is desirable to make, certainly the first time the patient is seen. Ordinarily, however, the inflammatory pone stands out more sharply and is more easily

defined by the palpating fingers early in the case; whereas the abscess is slower reaching a definite shape, and, therefore, stands up later in the history; and when it can be outlined, it is usually, but not always, larger, and has a certain doughy feel almost suggesting the pitting of œdema. The pone from day to day melts more rapidly: the abscess shrinking too, though never to the extent of the pone. And, finally, the leucocyte picture ought to be of aid: the leucocytes standing more constantly high, until the abscess becomes well walled off, when they may stand at normal.

In spite of all endeavors, one frequently meets pus where not suspected: he thinks his pone is gone: he opens into a pocket of unsuspected pus.

And, finally, sometimes from the onset apparently, usually within the first 24 to 48 hours, through primary rupture of an unguarded appendix, or still later from the secondary rupture of an abscess, or indeed without macroscopic rupture at all, but through lymph-absorption, those graver evidences of remote infection are met with. They are dependent upon the part involved,—a general peritonitis, or portal thrombosis, or involvement of the musculature of the heart, or of the structure of the lungs, kidneys, meninges, etc.

As to *Differential Diagnosis*: Should one set out to differentiate all the conditions which an acute appendicitis may simulate, and all of the conditions which might simulate an acute appendicitis, this task alone would be sufficient. I mention, therefore, only those conditions where I or another has been mistaken in diagnosis:

1.—Typhoid Fever: Not an infrequent or asinine error, when it is remembered that the typhoid ulcer may be actually within the appendix: and it is this location of the ulcer which brings about the confusion. Dr. Murphy says that 9 cases of typhoid fever came to him with a diagnosis of appendicitis. The differentiation may rest on the history: what was the first symptom? Pain comes first in ordinary appendicitis. Fever comes first in typhoid fever; fever first, and for three or four days; then pain, nausea and vomiting, local rigidity, and the *absence* of leucocytosis (*leucopenia*). The differential signs become even more numerous later.

2.—Pneumonia: One has himself to fall into

this error to be charitable to others. It is a possibility which should never be forgotten, especially with children: and this constitutes the surest guaranty of a differentiation. The respiratory-pulse ratio, the higher fever, the dilating alae nasi, and the larger leucocytosis, should suggest the diagnosis even in the absence of localizing signs in the chest.

3.—Acute Pyelitis: Especially in pregnant and puerperal women and in children, is this mistake likely to occur, in right-sided involvement. The mention of the condition prompts the differentiation: the microscopic examination of the catheterized urine.

4.—Renal Colic and Dietl's Crisis: The bladder symptoms, the radiation of pain, the blood in the urine, even if microscopic in amount, would seem sufficient; but the appendix may be adherent to the bladder fundus, hence confusion; the pain of renal stone often obstinately refuses to take its typical radiation; or the ureter may be blocked, hence no blood recoverable; and the X-ray and ureteral investigation may be our only help.

5.—Intestinal Obstruction: Much more often is appendicitis called obstruction than the reverse: for almost all appendicitis produces a condition of constipation more or less absolute. Personally, the differentiation is most confusing, in the early stages at least, and in the late stages, after distention becomes general, and especially so when the localization of symptoms takes one to the ilio-cecal region. However, the differentiation is not so essential as the conditions already mentioned: both are essentially surgical, and we do well to hand the burden over to the surgeon.

6.—Perforation of Gastric Ulcer, Acute Pancreatitis, and Acute Infection of the Bile-tract: Except for the higher localization of pain and rigidity, the abrupt onset of desperate symptoms, one may well be at sea in the absence of a clear-cut past history, the suggestions of which will help in the differentiation more than anything available at this stage.

Chronic Appendicitis: No more multifarious are the leads in acute appendicitis than in the chronic form: and the same puzzle of selection is entailed. However, it seems to me that the chief complaint with which the chronic appendix case consults us is chronic dyspepsia, with recurrent acute abdominal attacks of pain.

If one assertion is allowed to stand un-

challenged, differential diagnosis becomes comparatively easy: namely, if one can rule out, by their proper signs, tuberculosis (especially pulmonary), cardio-vascular-renal disease, cirrhosis, and the essential anemias, chronic indigestion is synonymous with chronic peptic ulcer, bile-tract disease or chronic appendicitis, with their complications and sequelae.

Then the differentiation narrows itself down to the distinction between these three, in itself material enough for a whole symposium.

Of ulcer, gall-bladder disease and chronic appendicitis, it may as well be admitted at the outset, a period may occur when they cannot be differentiated clinically, aside from the distinctive previous history of each: the period of the very chronic stage, where adhesions, obstructions, perforations and infections, and even association of one with another, may have so distorted anatomy and so beclouded physiology that there is no unraveling the clinical tangle. Hence, the assertion: a clear history extending back if need be over 20 years, is the great essential in the differential.

Of the three, chronic ulcer has a definite, clear-cut, regular symptomatology, certainly over most of the long years; periods of attacks, periods of freedom, regularly alternating. Appetite is good, nutrition maintained; food brings relief, stomach emptiness discomfort. During the attack precise relief of symptoms by food, its definite return a certain number of hours after food, is characteristic; and as characteristic is the long interval of freedom without digestive symptoms at all. "It is not the chronicity or the periodicity that is peculiar, nor the degree or location of the pain, nor the vomiting, gas, sour eructations or sour burning stomach; these are common to all types of chronic dyspeptic trouble; the characteristic point is the time the pain appears, with its accompanying symptoms of vomiting, gas, sour eructations; its regularity after meals or after other means that quiet, and the equally ready control of symptoms by food, vomiting, irrigation, etc. This characteristic regularity day after day, meal after meal, during the period of the attack is hardly equaled in any other lesion."³

Gall-bladder disease has its peculiar symptoms—and I purposely omit the smaller class with distinct attacks of colic, jaundice, etc. Light or prolonged, steady attacks of distress,

gas, upward pressure, seen after food, or at irregular times, eased by belching, slight vomiting or regurgitation; dull pain in the epigastrium or right hypochondrium, often with radiation into the right chest, to the right shoulder, or between the shoulder-blades. In this irregularity of symptoms is the key-note: no regular relation to eating, though the attacks are often called acute indigestion, gastralgia, neuralgia of the stomach, etc.

When the chronic appendix case is compared with these, we find the symptoms irregular as compared with ulcer; prolonged, when compared with gall-bladder disease. If attacks are short, they still lack the regularity of ulcer, and the sharp exacerbation of pain of the gall-bladder case, as well as its radiation. The appendicitis victim blames his attack upon the taking of food: the ulcer patient is relieved by food; the gall-bladder patient can see no relation to eating.

Pain in appendicitis is the prevailing symptom; and yet pain is not of the severity of the gall-stone attack, but more prolonged; not so dependent upon an empty stomach, as with ulcer: the appendix case refuses food because it immediately engenders symptoms. In ulcer, pain is strictly epigastric, without radiation; in gall-stones, epigastric, with radiation under the right ribs, to the chest, or under the right shoulder blade; in appendicitis, it may be epigastric, though not distinctly so, and with no distinct radiation, or vague or definite radiation to the umbilical region. Nausea, distress, flatulence and a feeling of distention cover the sensation of the chronic appendix case better than the chronic ulcer or gall-bladder case: and because of their seeming dependence upon food, the appendix patient is distinctly more of an invalid, often with a strain of the neurotic plainly running through the symptom-complex.

And yet, "if no history is recalled of pain radiating to the right costal arch or back, or if no general liver pain can be elicited, with no history of sudden, short, mild or severe epigastric attacks, with sudden cessation and perfect health immediately following, we cannot say gall-stones. If with these symptoms of pain, gas, and vomiting, and with the same epigastric location, we can get no early history of periods of attack with regular symptoms one to four hours after food, with clear cessation

of symptoms following food, drink, etc., but only symptoms of chronic complicated ulcer, then we cannot decide. So, also, with the same signs, if we can get no history of childhood or youthful attacks of diarrhea or belly-ache, no radiation of pain to the umbilicus or lower abdomen, no tenderness at McBurney's point, nor other local manifestations, but only chronic gastric symptoms, then we cannot diagnose undoubted appendicitis. What we can say is "You have a serious trouble, perhaps in the upper abdomen, perhaps in the lower, and surgery affords the great chance of relief, and it should be accepted."

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RESPONSIBILITY OF THE PHYSICIAN IN THE MANAGEMENT OF APPENDICITIS.*

By R. H. WOOLLING, M. D., Pulaski, Va.

The portion of the subject given to me for discussion is supposed to deal entirely with the responsibility and not with the management of cases of appendicitis. This, according to nearly all surgeons and most physicians, covers that period, which should be brief, between the diagnosis of the case and the delivery of the patient to the hospital, either for operation or for observation and operation as the surgeon may deem best.

It is hard to emphasize the responsibility without going into diagnosis, symptoms or treatment, and in order not to trespass on those portions of the subject given to others, I have necessarily made my paper brief and treated the subject in a very general way.

When we remember that nearly every case of appendicitis is seen by the physician first; that upon him falls the responsibility of the case at a time when time is vital; that it is he who must make the first diagnosis at a stage of the malady when diagnosis may be difficult, and when he would lay himself open to the charge of being an alarmist, which is regarded as a crime in many families, then do we realize the burden that is upon us and know that it is a time when we must be both cautious and bold, for the prognosis of a given case often

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depends upon the promptness with which the treatment is begun and the indications met. Our responsibility is increased because we can never tell what the further course of the case will be. We are often surprised to find how dangerously far the disease has developed,—especially how near the appendix sometimes is to perforation with such comparatively slight clinical symptoms as to make it impossible to anticipate these conditions; hence, the great responsibility, the great uncertainty.

This responsibility is further increased by the fact that in practically every case of appendicitis there is a first period, varying in duration according to the type and intensity of the case, during which time operative intervention is safe and simple, neither necessitating drainage nor requiring a long confinement in hospital, and is not followed by intestinal adhesions with their train of baneful results. Few diseases have been more thoroughly studied, discussed and written about during the last few years than appendicitis. Apparently the subject has been mastered. We know what to do, when and how to do it, and yet the mortality rate is higher than it should be. What is the cause, upon whom rests the responsibility, and how can it be remedied? I know of no better way to answer these questions than to give a few statistics taken from various sources and averaged up, and while they may not be exactly accurate as statistics, they are sufficiently so to emphasize the facts that I wish to bring out. These statistics show that about thirty-five to forty per cent of the cases of appendicitis that enter hospitals, enter either in the intervals between the attacks or in the sub-acute or chronic stage. That means that about two-fifths of all cases have had one or more attacks that they did not heed. Thus we see that about 60 per cent of the cases enter the hospital during the acute stage. That does not appear so bad, but let us see at what period of the acute stage they reach the surgeon. These same statistics show that in only about 40 per cent of the acute cases could the abdomen be closed at the time of operation. So we see that about 60 per cent of all acute cases had to be drained, either for safety, because of abscess, or because of diffuse peritonitis. Looking still further we see that the average duration of the case closed without drainage was about twenty-six to thirty hours, and the average

duration of the case that had to be drained was eighty-five hours.

Again, the mortality rate in cases closed without drainage, that is, operated upon in the first twenty-six to thirty hours was practically nil, while the mortality rate in the cases drained, that is, operated upon on an average of eighty-five hours after the onset of the disease and after such pathological changes had taken place as to make it impossible to close the abdomen, was 7 or 8 per cent. We also find that practically all the complications and sequelae occur in the cases drained. What a lesson this should teach us; does it not tell us what to do in order to lessen our responsibility?

Another duty which falls upon us as physicians, and one which I think has been fairly well met, is bringing the laity to a better understanding of the disease in order that our advice may be willingly and promptly followed. I say fairly well met because we do not now often find a patient who is unwilling to seek the aid of a surgeon when told by the *family* physician that it is necessary to do so. If that be true, then it throws the responsibility of the enormous per cent of drainage cases on the physician, leaving out, of course, those cases seen late or which, for some reason, it is impossible to give surgical aid. This to my mind is one of the most important phases of the subject.

Not so many years ago when the study of appendicitis was in its infancy; when its causes, its course and its consequences were not so well known, we were perhaps justified in feeling that our duty had been done if we so conducted a case that the patient's life was saved; but not so now with our advanced knowledge of the disease, we expect more of ourselves. Rarely should a case of appendicitis progress until it is a question of saving life; the fight from the beginning should be to save the abdomen. We know that about four out of five patients will recover from the first attack of acute appendicitis without abscess, peritonitis or death, and the temptation to temporize in the hope that a given case will be one of the lucky four is great and is often yielded to. Valuable time is lost, the primary period before mentioned passes, and instead of a simple operation we have one that is extremely dangerous

and the price of the delay is often the life of the patient.

To summarize: We have to deal with a disease of a useless organ, a disease which at any time may become extremely dangerous by perforation. Even if that does not take place, the result of the inflammation will be that the patient is left with a crippled abdomen, or it will result in such anatomical changes that another attack is more likely to occur. We have to deal with a disease that is essentially surgical. We have to deal with a disease for which there is no internal treatment.

All we can do is to put the appendix and surrounding parts in the most favorable condition to withstand the invasion, and when nature fails to do this the disease passes at once into the domain of surgery.

We have to deal with a disease the onset of which is varied and the progress uncertain, the catarrhal of today often being the fulminating case of tomorrow and causing death the following day. We know appendectomies are often done too late, never too early, and when we feel the weight of responsibility and uncertainty, we must remember that principle which jurists use in making the laws that govern us, that is, do that which experience has taught us will bring about the greatest good to the greatest number.

SYMPTOMS AND MEDICAL TREATMENT OF APPENDICITIS.*

By A. B. GRUBB, M. D., Cripple Creek, Va.

The symptoms of appendicitis should be divided into those of the acute and chronic form. Many subdivisions of these two important forms could be made, but a thorough knowledge of the symptoms of acute and chronic will always lead to the correct diagnosis and treatment.

Acute appendicitis is practically always ushered in by pain, generally followed by nausea and vomiting. The pain is at first felt at any point of abdomen, but soon becomes more localized at McBurney's point, or the region of the appendix. The patient generally seeks the recumbent posture and lies with the right thigh and leg flexed, as this is the most comfortable position.

There may be with the first pain a slight

general abdominal rigidity, but as the pain and inflammation become more localized, the rigidity becomes local also, and the rest of the abdomen becomes very flaccid unless, of course, there is general peritonitis. Within a few hours after the onset of pain a rise of temperature is to be expected, provided there is enough infection to produce the temperature, or unless the onset is so severe as to produce shock, when, of course, the temperature may be subnormal; in fact, the prettiest study of acute appendicitis is to consider it from a standpoint of peritonitis and shock.

As the appendix becomes inflamed, the peritoneum becomes involved either slowly or rapidly according as it is a severe case or mild. If the case is severe, the whole peritoneum soon becomes involved with the terrible symptoms of a general peritonitis.

If the infection is mild and continues mild, resolution may take place; or the entire trouble may become well localized and walled off, in which case after several days an abscess probably forms around the appendix. If, on the other hand, perforation occurs, the case may become one of profound shock, with subnormal temperature and rapid, thready, pulse. Sometimes the patient does not react from the shock of perforation, but if reaction takes place a rapid diffuse peritonitis follows.

The next very interesting form to be considered is chronic appendicitis. As surgery advances, more and more is learned of this subtle friend to the surgeon.

In the obliterative form the increased connective tissue causes a contraction around the lumen of the appendix, with partial stenosis and at times a complete closure; this in time prevents the secretion of the appendix from being drained into the lumen of the bowel, thus causing distention of the distal end of the appendix, with resultant pain, until the contents of the appendix are discharged spontaneously. A striking resemblance between this condition and "salpingitis profluens" comes to our mind.

Another cause of pain in the obliterative form is contraction of the connective tissue, thus impinging or pinching the ends of nerve fibres within the appendix, thus causing the dull aching of the chronic form.

Many a case of so-called chronic appendicitis is not an appendicitis at all, but the adhesions around the bowel of an old or acute appendicitis.

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or our more recent friend, Lane's Kink, which I am told is a band of adhesions a few inches above the appendix that causes a sharp turn in the bowels somewhat after the shape of a horse shoe, or it may be only a band of adhesions around the appendix and bowels which interferes with the normal peristaltic movements.

But discarding the different forms of chronic appendicitis, we cannot run amuck, 'for just as in mediæval times all roads lead to Rome, so in this affliction all roads lead to gastric distress, or plainer still old fashioned indigestion.

Not all indigestion is appendicitis, but all or at least practically all chronic appendicitis causes indigestion.

I recall an interesting case of a young man about twenty, who suffered so much with gastric uneasiness after eating that he was holding himself down to soft boiled eggs, light bread, chicken wing and other light articles of diet. The particular symptoms were hyperchlorhydria, fullness in stomach after meals, coated tongue, odorous breath, and a general feeling of not being well. Deep pressure over the appendix produced just the slightest amount of tenderness. Operation in one of our local hospitals revealed a few adhesions, and an elongated and adherent appendix. The adhesions were broken up, the appendix removed, and now the patient is entirely relieved.

Dr. Arron, of Detroit, calls attention to an additional symptom, viz.: that deep pressure over the appendix causes an uneasiness or slight pain in the epigastrium; this he holds is due to the highly developed nerve fibres of the gastric plexus which send filaments to the appendix. He has found his diagnosis verified at operations in every instance.

With reference to the medical treatment of appendicitis, we may well copy from the wisdom of the proverbial barefooted school boy who said, "There are no snakes in Ireland," so we should learn over and over "There is no medical treatment for appendicitis," though ever and anon some good physician rises up to laud so and so as a medical treatment.

The physician, of course, should be familiar with the right kind of treatment until the surgeon can be reached. This consists in withholding both food and water by mouth. The patient should be kept in a semi-sitting posture, so that the toxins will drain away from the diaphragm, as the absorption is four times more

rapid in the upper abdomen than in the pelvic region. The ice bag should be applied to the right iliac region during the first few hours, to be substituted with hot fomentations later.

After the diagnosis is firmly established—mark the words "firmly established,"—an eighth to one-fourth grain of morphia should be given to quiet peristalsis, to relieve pain, and to lessen the dread of operation. As morphine has such a soothing effect on the patient, we should not be deceived into thinking that our patient is improving; we should also bear in mind that the patient himself may want the operation delayed if he is under the bewitching influence of the drug.

Normal saline by the drop method should be given if convenient, but perhaps it would be better to give plain spring water by the drop method, as it will tend to relieve the thirst following operation, whereas, the normal saline will accentuate the thirst.

SURGICAL TREATMENT OF APPENDICITIS.*

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This subject may be broadly divided into two general heads: first, the treatment of acute cases and, second, the treatment of chronic cases.

We will consider the treatment of the chronic cases first because this class of cases can be dismissed with a few words. Given a patient with a history of chronic appendicitis,—who has had one or more attacks, and suffers more or less between attacks with soreness in the right iliac fossa, with constipation, indigestion, possibly with pains coming on immediately after taking food, with bloating and belching of gas, we think one would be justified from such a history in making a diagnosis of chronic appendicitis. The treatment for such a case would be surgical, and the best time to operate would be between attacks.

In deciding as to the incision, one should try to gather from the history of the case whether or not he expects to find a Lane's kink or a Jackson's veil, and whether or not he will probably wish to explore the gall-bladder or stomach. Should the history not be definite enough to decide positively that it is unquestionably a case of chronic appendicitis, then

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it is well to make a right rectus incision; this may be extended upward over the gall-bladder and stomach if necessary. The appendix should be sought for and, when found, should be brought into the wound together with the cecum. If adhesions are present they must be loosened up. The appendix with its mesentery is then ligated, a purse string suture being placed around the base. The appendix is then cut off and the stump buried. The junction of the ileum and the cecum should be sought and examined for a Lane's kink, which, if present, should be released. The cecum and ascending colon should also be examined for the presence of a Jackson's veil and if one is present it should be dissected from the cecum and the ascending colon as far as necessary. All raw surfaces should be carefully covered in with peritoneum. After all adhesions are thoroughly released, the intestine should be smeared over with a liberal coating of sterile vaseline which will prevent, to a large degree, the reformation of adhesions. The incision should then be closed in layers without drainage.

The acute cases may be divided into acute catarrhal appendicitis, acute suppurative appendicitis without perforation, acute suppurative appendicitis with perforation and formation of abscess, acute gangrenous appendicitis without perforation, and acute gangrenous appendicitis with perforation and formation of abscess or diffuse peritonitis.

Statistics show eighty per cent of all cases of appendicitis will get over the acute attack without operation, but that leaves us with a mortality of twenty per cent. For the reason that eighty out of every hundred cases live without operation has led certain doctors in some communities to believe that they can cure appendicitis without operation, and these doctors frequently attain a considerable local reputation for their ability to tide people over attacks of appendicitis without operation. However, when we consider that of all cases of appendicitis treated without operative interference there is a mortality of twenty per cent, it behooves us to search diligently for means to save this twenty per cent of cases. Such a means has been found in surgery. It is now a recognized fact that, barring accidents, practically all cases of appendicitis may be saved, provided they come to operation soon enough.

So long as we are unable to determine in any given case whether it comes under the eighty per cent or twenty per cent class, it is necessary for us to have some general working rule to guide us in the management of all of these cases. The treatment of appendicitis, both therapeutically and surgically, has been probably more nearly perfected than any other branch of surgery. In 1883, when Fitz, of Boston, first discovered appendicitis, the operative mortality was very high because operation was delayed until various complications had arisen and the patient was in a moribund condition. As experience increased and the profession learned that patients did best who were operated on earliest, the pendulum finally swung to the other extreme and everyone who was surgically inclined attributed all ills that the abdominal cavity was heir to, to be caused by the appendix, and a large number of appendices was needlessly sacrificed.

The Time to Operate.—Until we are able to have some method by which we can tell absolutely which cases of appendicitis will get well or come under the eighty per cent class, it is necessary that we should all agree upon one view, viz.: that in acute appendicitis in which the patient comes under the care of a surgeon during the time the infection is still confined to the appendix, immediate operation is indicated, provided a competent surgeon is available and the other conditions necessary for the successful execution of abdominal operation are within reach.

This is the opinion of all surgeons with extensive experience. It is true for the following reasons:

1.—The patient is practically certain to recover.

2.—He will be able to resume his occupation within a short time.

3.—He cannot have a recurrence.

4.—It practically eliminates complications, such as adhesions, metastatic abscesses, empyema, septic endocarditis, thrombo-phlebitis, and peritonitis.

5.—Drainage will be unnecessary; hence, there is no danger of post-operative ventral hernia.

6.—The infections of the pelvic organs in the female, with their serious consequences, as adhesions, dysmenorrhea, sterility, ovarian cyst, etc., will be avoided.

7.—There will be no serious digestive disturbances which are practically always present in patients suffering from recurrent appendicitis.

8.—The amount of suffering will be reduced to a minimum.”—(*Oschner*).

In cases where perforation has taken place and there is diffuse peritonitis, opinion as to when to operate differs. Some eminent authorities advocate immediate operation in all cases regardless of the time that has elapsed since the beginning of the attack. Others advocate the treatment of these cases by the *Oschner* method, which is merely preparatory for an operation. We are of the opinion that this is the best course to pursue in these desperate cases, and we have more than once brought cases to a favorable termination by pursuing this plan of treatment which we believe would have terminated fatally had we performed an immediate operation.

Preparation of Patient.—In the chronic cases the patient is prepared for operation in the usual way, namely, a dose of castor oil the afternoon before the operation, light supper and no breakfast. The abdomen is shaved the night before, and after the patient is on the table and under the anaesthetic the abdomen is thoroughly wiped off with a solution of iodine crystals dissolved in benzine. This removes all the sebaceous material from the skin. The skin is then painted over with a three and a half per cent solution of tincture of iodine. In the acute cases demanding immediate operation, if the patient has been vomiting, the stomach is usually washed before going to the operating room and also again on the operating table immediately after the operation. Ordinarily there is no other preparation although occasionally a small, low soap suds and glycerine enema is given to empty the lower bowel. The field of operation is prepared in the same manner as has been described.

Operation.—In acute cases in which we are certain of the diagnosis, a *McBurney* muscle splitting incision is made and the appendix removed in the usual manner. If there is an abscess or diffuse peritonitis, one or more long split rubber drains with a small gauze wick are inserted, one down to the stump of the appendix, and another placed in the cul-de-sac of Douglas. If necessary, a third drain may be inserted in the right kidney fossa or towards

the liver. When we are not absolutely certain of our diagnosis we make a right rectus incision in order that we may explore the abdominal cavity thoroughly, and if any complications are present they may be dealt with accordingly.

Post-Operative Treatment.—In the suppurative cases with diffuse peritonitis, these patients are immediately placed in the Fowler position. If there is much shock following the operation, from a pint to a quart of normal hot saline is put into the bowel before the patient leaves the table. After they are placed in bed they are given saline continuously as much as they will take by the *Murphy* drop method. We also favor postural drainage, that is, turning the patient on the right side with one or more pillows placed under the back. If nausea and vomiting are persistent, we wash out the stomach one or more times which usually relieves this condition. We give absolutely no nourishment by mouth, not even water, until the patient shows indications of improvement, which may be several days. If there is great distention, we believe the gas with low soap suds and glycerine enemas, or alum enemas which are more effectual.

Should the patient be nervous and restless and suffering pain, we relieve this condition by giving one or more small hypodermics of morphine with a little atropine. If the heart is weak and needs stimulation, we use sparteine hypodermically. This also acts on the kidneys. The dressings are changed repeatedly, usually being moistened with normal salt solution which promotes capillary drainage and absorption of the pus. The drainage tubes are removed according to indications. If the patient cannot void he is catheterized. As soon as the stomach is settled, if there are no contra-indications, we start these patients on hot water which is usually well borne and quenches thirst.

A COMPARISON OF THE METHODS OF TREATMENT OF CARCINOMA OF THE CERVIX.*

By P. ST. L. MONCURE, M. D., Norfolk, Va.

The subject is entirely too big for me to do more than briefly outline the several methods as recommended by men who have made more or less a specialty of dealing with this most

*Read before the Surgical Section of the Norfolk County Medical Society, April, 1913.

For discussion, see page 200.

ravaging and fatal disease,—of stating what is claimed by each to recommend his method of eradication. I will then cite some of my own experience in work along this line.

Operations on cancer of the cervix may be done for three purposes: 1st,—to eradicate the disease; 2nd,—to palliate the disease and give the patient a lease on life; and 3rd,—to make her, as well as those around her, more comfortable. I am dealing, however, tonight more with the cases in which a radical operation is performed in the hope that the patient will not have a return of the growth.

Three operations are done for the removal of the diseased organ:

First, the operation most in favor is that of Wertheim, who has advocated his operation for many years, though the mortality from this still runs very high,—higher than some of the modifications of his method, and higher considerably than those of Byrnes' followers, with the electric cautery knife.

Wertheim's operation consists of the widest possible dissection of the parametrium and removal of all the enlarged glands in the pelvis. It consists of curetting and cauterizing the cervix before operation (without anaesthesia to prevent or lessen shock), a free incision in median line, separation of bladder from uterus and vagina, ligation of round and broad ligaments far away from uterus, and division of two layers of broad ligament. The ureters are exposed up to the parametrium, without *isolating* them. Here the finger is slipped under the uterine artery and veins which cross it, which are now safely ligated without danger of wounding the ureters. The next step is separating vagina from rectum; next a wide excision of parametrium after applying bent clamps. Two right angled clamps are now applied and the vagina cut across between them. The next step is the removal of the lymph glands, which lay above common iliacs, external and hypogastric iliac, and the trigone between both; also downwards towards obturator foramen and, lastly, high up towards division of the aorta. The pelvic wound is always drained by iodoform gauze and the abdominal wound closed entirely without drainages.

The cautery in the radical treatment of cancer of the cervix, or the Byrne operation, as performed or described by Robt. L. Dickinson of Brooklyn, consists of a large cautery knife run

by an alternating electric current, put through a closed circuit transformer, which tones down the voltage from about 75 to 20 volts which can be further controlled down to 0. This is used in heating the cautery knives. He recommends a very heavy knife as he can get a *steady* heat and not too high. Little knives heat too quickly and the operator is apt to get them too hot so that the tissues are charred instead of being cooked,—the argument being that a black scab on the end of a vessel will be knocked off or washed away by a blood current, whereas a slow heat will cook it into a leathery, horny mass which will not bleed. He says that the perpetual refrain of Byrne was "less heat," "a deep dry roast," "a deep dry roast." Byrne's operation consisted of only the high amputation; this, however, has been pushed forward by Dickinson until now he does, when necessary, the vaginal hysterectomy entirely with the cautery knife. He uses the argument that most cases curable are curable by lesser operations than Wertheim's. He recommends in early cases, when the uterus is to be removed, tying the broad and round ligaments with sutures to save time. Patient may be in either Simm's (Byrne's preference) or dorsal position; cervix may be curetted and iodine or pure carbolic acid swabbed over surface and cervix closed by sutures. He then dissects the vaginal cuff back widely in cases in which the cervix is involved near junction of cervix and vagina; otherwise it is not necessary to go so far from cervix. Strong traction is made on cervix, making line of incision with the knife. By using only a dull red heat, charring is avoided and danger of hemorrhage brought down to the minimum. After getting through the vaginal wall, the loose cellular tissue between uterus and bladder is easily and quickly dissected back; next he burns into the cul-de-sac; next the flat band of the round ligament is taken up, and the clamp is here applied. "Keeping away from the uterus and a safe distance from the ureter," the bases of the broad and the utero-sacral ligaments are cooked. The uterine artery may be dissected out by the knife, then cooked with the flat part of the knife, or, if preferred, ligated. The upper portion of the broad and the round ligaments may be ligated to save time. Great care should be observed not to use lateral tractors, thus pulling open the wound and causing fresh hemorrhage. He claims that the cooking or roasting process of

the knife has an influence far beyond the growth;—this was Byrne's great contention. The difficulty used to be that when the knife worked it worked beautifully, but so often it failed. The instrument as now perfected is reliable. All benzine heated tips are clumsy.

X. O. Werder, of Pittsburgh, who is a great advocate of the electric cautery, describes in an article in *Surgery, Gynaecology and Obstetrics*, his modification of the operation. He commences in the vagina, making a good cuff in its wall with the cautery knife, finally opening the abdomen and clamping the broad and round ligaments with cautery knife, claiming by this method to be better enabled to avoid injury to *ureters* and *bladder*, and also of deciding whether the case is one suitable for total extirpation. He uses the Down's clamp. He claims the operation can be done without the loss of a drop of blood. He closes up stump of vagina and brings bladder down over it to rectum, and closes abdomen without drainage. He claims that accidents to bladder are not more common than in other operations.

One other operation of which I will make mention, but which I have never seen, known now as the Schauta operation, was described and commented on at the Congress of Surgeons of America, in New York, last November, by Gellhorn, of St. Louis. The cautery in this operation is not used except as a preliminary on the diseased tissue of the cervix. 6 or 8 volsella are placed around the vaginal wall near the introitus, and distal from these a circular incision is made and a cuff stripped up; this cuff is then sewed up with strong silk sutures with their ends left long to be used as tractors. The bladder is next separated, when the operation can be stopped at this point if it is determined that entire removal is impossible. The next step is an incision starting from the vaginal circular incision on the left and somewhat posteriorly extending laterally to the lower end of labia minora, turns downwards and parallel to the rectum and finally curves inwards, terminating behind the anus. The incision splits the para-vaginal and para-rectal tissues, levator ani and coccygeal muscles, cellular tissue of ischio-rectal fossa, as well as skin of perineum and lateral anal region down to sacrum. Rectum and sphincter are of course avoided. Bleeding, which may be quite considerable, is stopped.

Instead now of a vaginal tube to work through, we have a shallow excavation to work through,—not deeper than one inch. The next step is to ligate and cut the uterine artery and vein, which releases the ureters; these can then be easily held up with the bladder with retractors. The parametria are ligated and divided close to the pelvis. The uterine vessels having been previously ligated, there is not much bleeding,—only from the middle hemorrhoidal artery. The rest of the operation of removal is done in the usual way. The peritoneum is closed carefully, the stumps of the broad ligaments having been brought down and fastened extraperitoneally. The large cavity beneath the peritoneum is loosely packed with gauze. The paravaginal incision is closed with buried and superficial sutures; Gellhorn inserts a cigarette drain in lower angle of wound.

So much for the various operations. The rest of the paper will be devoted to my personal criticism of the various methods with some experiences.

The Wertheim operation, taking it through and through, is, I believe, the most popular, though I doubt if it is often carried out to its fullest extent—at least here in Norfolk. I have never found it necessary to dissect out all the little glands found along the large blood vessels of the pelvis as far up as the bifurcation of the abdominal aorta, and Wertheim reports only five cases, in which these glands were enlarged where his patients lived 5 years after operation. When these glands are enlarged, to my mind, the case is an inoperable one as far as the radical cure is concerned. Apart from this, I usually follow his operation. The greatest danger in this or any other operation where there is a wide dissection or division of the parametrium is the wounding of the ureters, and it is a mistake for the textbooks to contend that formerly—when the operation of hysterectomy was in its incipency—the ureters were frequently injured, but rarely now since the anatomy is more fully understood. I have injured the ureter twice in this operation; I cut it absolutely across once, and pinched it once with a forcep so that it sprung a leak into the vagina in 10 or 12 days. In each of these cases I knew well my parts, but in an effort to get all of the diseased parametrium away the accident occurred. In case of the division it was repaired at once without

a bad symptom following,—between three and four years have passed and the patient is in good health. The other occurred in an effort to stop profuse hemorrhage from the plexus of vessels surrounding the ureter just before entering the bladder; I did not know of the injury done till twelve days later when it began to leak through the vagina. In this case, I afterwards operated again; transplanting the ureter into the bladder. And let me say right here that one of the most aggravating complications I ran across in this operation is the troublesome hemorrhage from this plexus,—so much so that whenever I get profuse oozing in this region, I know I am pretty close to the ureter.

Until recently I used to cauterize a cuff around the vagina, after curetting and cauterizing the growth of the cervix, before going into the abdomen, but on one occasion, I charred the bladder wall, resulting in a slough in about 10 days, so I have abandoned it, at least for the present. One great objection in this respect, however, is our clumsy Paquelin cauteries. I have likewise abandoned the method of closing up the vaginal stump entirely by continuous suture, because there is always some infection in the raw cellular tissue above, which should be drained. I have gone back to the Kelly method of putting in a whip or a buttonhole stitch around my vaginal cuff to control hemorrhage, and usually (though this is not necessary) insert a gauze vaginal drainage into this raw space, closing the peritoneum here completely as well as the abdominal wound.

I have wounded the bladder three times. I cut into it once, repaired it and never had a bad symptom. I pinched it once with a right angled clamp and did not know I had wounded it until it broke down a week or so later. I had to repair the wound weeks later, and had no further trouble. The third was caused by the cautery, leakage occurring some days after the operation. The patient had been having terrific hemorrhages before operation. The growth was well out in parametrium. The patient died apparently from weakness and infection.

My observation has been to confirm that of Wertheim and others, that the rectum is rarely involved, nor is the bladder or ureters attacked until late. The growth is very much more rapid in young than in older people—those passed menopause.

As opposing the radical operation of Wertheim, Clarke, of Philadelphia, mentions high primary mortality. There is no law as to metastases, and glands more remote are sometimes first involved. Clarke says there is no law as to what type of case is most apt to spread, though that is contradicted by many; besides it is scarcely possible to remove all the glands when they are involved.

In dealing with wounds of the ureter when they occur at time of operation, Wertheim recommends removal of kidney rather than transplanting the ureter into the bladder. Six per cent of his cases have had uretero-vaginal fistula following; sixty per cent of these closed spontaneously.

A great deal more can be said on the subject, but I hope this is enough to bring out the views of others.

Proceedings of Societies, Etc.

NORFOLK COUNTY MEDICAL SOCIETY— SECTION ON SURGERY.

Reported by FRANK H. HANCOCK, M. D.

A Comparison of Methods of Treatment of Carcinoma of the Cervix

Was the subject of a paper,* by Dr. P. St. L. Moncure, read before this section at its April, 1913 meeting.

DISCUSSION.

Dr. Hargrave said that cancer of the cervix or uterus was of great importance, among other things, because of its *insidious onset*; and while it was proper to discuss operations for *radical cure*, as he proposed to do in a moment or two, it was vastly more important to consider the anticipatory signs of this intractable tumor of the epithelium; and the real inability of the medical and surgical art to deal with it, *after the initial stages had passed*.

We do not know much more about this disease than the ancients did, as our results show; and our diagnosis is still delayed because of the lack of a specific symptomatology.

It is interesting to note, in connection with this question of recurrence, that the percentage is so much lower in Europe than here. Take the figures offered by Taylor, of the Roosevelt Hospital, New York, last year before the American Gynecological Society; as far as the

*For paper, see page 197.

speaker could recall, they were somewhat as follows: Where the symptoms *had not lasted longer than three months*, an ordinary abdominal or vaginal hysterectomy had been performed in 50 per cent. of the cases; where the *symptoms had lasted from three to six months*, the same operation, that is, an ordinary hysterectomy, only was required in 40 per cent. of the cases; whereas the same operation could be used in only 10 per cent. of the cases that had lasted six months or more.

Taylor finds that in only about 18 per cent of his cases have the women presented themselves before the end of the first three months' period of suspicious symptoms; whereas Aulhorn was able to get hold of 54 per cent. of his cases at or about the end of the first three months' period, which is responsible for and representative, too, of the lessened number of recurrences as compared with ours—taking Aulhorn's statistics as fairly representative of Europe, and Taylor's as fairly representative of America.

Only 18 per cent. of Aulhorn's cases presented themselves at the end of a six months' symptom period, which is directly the reverse of Taylor's statistics; and so Aulhorn is able to show 40 per cent. of cures at the end of five years; which is greatly superior to any statistics we can offer in this country.

It appears, therefore, that *an ordinary hysterectomy* will give a better result, where symptoms have lasted less than six months, than the most radical operation devised by Wertheim, or Schauta, will give, where the symptoms have lasted *longer than six months*.

It is of interest that not more than 25 per cent. of cases of cancer of the uterus reported within a given period to the New York Board of Health, were operated upon on, beyond a mere cauterization of the cervix. Now, if only 25 per cent. of cancer cases are operated on that occur in the women of this country, and 82 per cent. of those after the three months' symptoms period, as contrasted with 46 per cent. in Europe, we can understand how little we are really doing for the prolongation of life in this country against death by cancer; and how the mortality from cancer is becoming greater and greater as compared with tuberculosis, the mortality from which is becoming less and less, because of the systematic fight being made there.

As we discuss cancer quite often, I shall take

some other time to tell you of the radical vaginal operation for cancer as performed by Schauta, in whose clinic in Vienna I had the privilege of spending the greater part of last winter. Certainly it appeared to me to be a generally satisfactory operation.

This question of operability is a very interesting one, said *Dr. R. L. Payne, Sr.*, and especially so to American surgeons, who get so many advanced cases, as Dr. Hargrave has brought out.

It is rather difficult to say when a case is actually inoperable; how much parametritic infiltration, bladder and rectum fixation, glandular enlargement, and general enfeeblement, render an operation inadvisable. It develops that about 50 per cent. of the cases that apply to the great German and Austrian Clinics are operated upon, with results that are not so different on the whole, except in the case of one or two men who refuse to do the radical operations, as done by Wertheim, Kronig, Doderlein, and Schauta.

These first three men have an average primary mortality of twenty per cent.; that is one out of every five that they operate upon dies immediately.

These gentlemen accept this high primary mortality as an evidence of the thoroughness with which they do their work, extirpating uterus, parametrium, and vagina; and they criticise other operators, as von Rosthorn, and Zweifel, because their primary death rates were not above 6 to 8 per cent. respectively; saying that, had those dissections been coextensive with their own, the primary death rate would have likewise equalled theirs. Zweifel's apologists retort that while he has an actually higher operability than Wertheim, since he has operated on 45 per cent. of all cases appearing at his clinic, as against Wertheim's 43 per cent., he also can show a permanent salvage after five years of 20.46 per cent. as against 18.4 per cent. for Wertheim.

Now, if these radical operations performed by the most skillful specialists in our profession have been attended by such an amazing death rate as one person out of every four or five operated upon, and then if we consider in addition the disabling and distressing sequelae which accompany the survivors, with about 80 per cent. of recurrences before the expiration of five years, it can readily be seen that the

radical operation, as practiced, can have no really permanent place in our armamentarium.

Those operations, with the results announced, render them unavailable to the great body of American surgeons. No operation can last in this country with a high primary death rate, whatever they may be able to do over there with herds of German and Austrian peasants.

A simple hysterectomy, with a small primary mortality, and no complications, is preferable, in my opinion, to the wide dissection and denudation of the radical operation.

Attention was now called to a statement made by Dr. Moncure in his paper that Wertheim quite frequently removes the kidney in case of injury to the ureter, or where extensive dissection is necessary to free it from cancerous growth; that a nephrectomy is often done by Wertheim, Weible, and others, rather than a resection of the ureter even, and subsequent transplantation in the bladder.

So far as we know no American surgeon does this, for various obvious reasons that are not necessary to go into now.

One American surgeon, two or three years ago, attempting to remove a uretero-vaginal fistula that had developed two weeks after an extensive hysterectomy for fibroids, found that the proximal end—the ureter having been cut in two—was too short to reach the bladder, while the distal end was lost in a bewilderment of adhesions.

Apparently he had to do a nephrectomy, if he did anything, as the Germans do, or leave the case as he found it.

He did neither, but something more ingenious and much better than the Germans had conceived of under similar circumstances. He lowered the kidney sufficiently to anastomose the proximal end of the ureter with the bladder, and then having fastened the kidney in its new position, completed this original operation. There were never any complications, and the woman is well to this day.

The chairman of this Section, Dr. R. L. Payne, Jr., devised this operation in the presence of a great emergency. Mention is made of it not only on account of its novelty, but on account of its effectiveness as well.

An account of it was seen by the speaker in a transcript of the *Proceedings of the International Society of Gynecologists*, meeting that year in Brussels.

Book Announcements and Reviews

The Semi-Monthly will be glad to receive new publications for acknowledgment in these columns, though it recognizes no obligation to review them all. As space permits, we will aim to review those publications which would seem to require more than passing notice.

Principles and Practice of Obstetrics. By JOSEPH B. DE LEE, A. M., M. D. Professor of Obstetrics at the Northwestern University Medical School. Large 8vo. of 1060 pages, with 913 illustrations, 150 of them in colors. Philadelphia and London W. B. Saunders Company, 1913. Cloth, \$8.00 net; half Morocco, \$9.50.

On the more than one thousand pages of this book, the student, the regular practitioner and specialist will find something new and useful. The arrangement of the book at once commends itself. For instance, all of the most important matter is in large print and the less important part is in smaller type. The cuts, plates and photographs are almost entirely new and original, which lends freshness to the work. Where operative procedures are necessary, anyone following the various steps by the plates will at once have a clear and easy conception of what is intended without close application to the text. It will be a standard work for years to come.

M. D. H., Jr.

Southern Woman's Magazine. Published by Southern Woman's Magazine Company, Nashville, Tenn. Subscription price, 50 cents a year; single copies, 5 cents.

The July issue of this comparatively new magazine, which has just reached our desk, is most creditable, and, as its name would indicate, treats of subjects of especial interest to women. A variety of subjects are well discussed, and the magazine seems well worth its price. As far as we are informed, this is the only magazine published in the South exclusively for women.

Surgery and Society—A Tribute to Listerism. By C. W. Saleeby, M. D., F. R. S. E., Fellow of the Obstetrical Society of Edinburgh. New York: Moffat, Yard and Co. 1912. Cloth, small 8 vo. Pages 395. Price \$2.50 net.

An Introduction to the Study of Infection and Immunity.—Including Serum Therapy, Vaccine Therapy, Chemotherapy and Serum Diagnosis. By CHARLES E. SIMON, M. D., Professor of Clinical Pathology and Experimental Medicine, College of Physicians

and Surgeons, Baltimore. Octavo, 301 pages; illustrated. Cloth, \$3.25, net. Lea and Febiger, Publishers, Philadelphia and New York, 1912.

Text Book of Biology—For Students in Medical, Technical and General Courses. By WILLIAM MARTIN SMALLWOOD, Ph.D., (Harvard), Professor of Comparative Anatomy in the Liberal Arts College of Syracuse University, and in charge of Forest Zoology in the New York State College of Forestry at Syracuse. 8vo. 285 pages. Illustrated with 243 engravings and 13 plates, in colors and monochrome. Cloth, \$2.75, net. Lea & Febiger, Philadelphia and New York, 1913.

Manual of Personal Hygiene.—Proper Living upon a Physiologic Basis. By Eminent Specialists. Edited by WALTER L. PYLE, M. D., Assistant Surgeon to the Wills Eye Hospital, Philadelphia. Fifth edition, revised and enlarged. 12mo. 516 pages. Illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$1.50 net.

The Surgical Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. Volume I. Number VI. (December). 8vo. 153 pages. Illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Published Bi-Monthly. Price per year: paper, \$8.00. Cloth, \$12.00.

Practical Pathology.—A Manual of Autopsy and Laboratory Technique for Students and Physicians. By ALDRED SCOTT WARTHIN, Ph. D., M. D., Professor of Pathology and Director of the Pathologic Laboratories in the University of Michigan, Ann Arbor. Second edition, rewritten and enlarged. 8vo. 321 pages and 55 figures. Ann Arbor: George Wahr, publisher, 1911. Cloth, price \$3.00.

The Wassermann Reaction.—Its Technic and Practical Application in the Diagnosis of Syphilis. By JOHN W. MARCHILDON, B. S., M. D., Assistant Professor of Bacteriology, St. Louis University Medical School. Eleven illustrations and colored frontispiece. St. Louis: C. V. Mosby Co. 1912. Cloth. 12mo. Pages, 103. Price \$1.50.

Editorial.

The Epidemic of Bichlorid Poisoning.

At the present time an epidemic of poisoning by the bichlorid of mercury is surging over the country. Scarcely a day passes without the daily press record of one or more unfortunate accidents or suicides with this agent. Until the case of the Southern banker was recorded few were made public, but with the spectacular glamour surrounding the passing days of the victim, his reported statements that he suffered no pain, and that awaiting the final dissolution was pleasant, the pendulum has swung towards bichlorid.

Poisoning by bichlorid of mercury is fast supplanting carbolic acid, and for the education of those who desire to end life, the number of tablets and number of grains contained are faithfully stated.

When poisoning results from accident, the reason assigned is mistaking the container for one with migraine, dyspepsia, or other tablets.

It is hardly necessary to speak of the symptoms of these poison cases, or of the slow permeation of the system with mercury sometimes observed; our only purpose is to sound a warning. These cases rarely survive ten or twelve days; usually they terminate in from half to several hours.

The time has arrived when severe restrictions must be placed upon the sale of this preparation; the simple registration of the sale with the reason of the purchase does not suffice. The label of the firm making the sale only serves for identification. The reasons for the purchase are usually false; therefore, the prescription of a regular registered physician must be demanded, as in the case of morphia, cocain, and other poisons.

Nearly every obstetric outfit contains at least twenty-five tablets of bichlorid of mercury, and a majority of such cases will procure the outfit. In the hands of a responsible nurse, or an intelligent woman, little danger is apprehended during the lying-in; but when convalescence and good health are established, the unemptied container is placed among the other bottles in the medicine case, where it becomes a menace and a source of danger to the family. In the confusion and hurry of an emergency, which will usually occur during the night, the wrong bottle is seized, the patient given poison and a fatality is recorded.

Instances occur where no pain is complained of; but this absence of pain is not the rule—quite otherwise; it is due to the presence of food in the stomach, or to the compressed tablet dissolving slowly. In those cases where there is a slow solution of the tablet, medical aid is generally powerless, and the unfortunate one may linger for days, to finally pass away. This may be proved by deaths following vaginal douches with the mercuric solution, continued for a long period.

Now, the question arises, who is to blame? It is useless to attempt to shift the responsibility to lax law, to the druggist, or to the in-

dividual giving the poison; the entire responsibility rests upon the physician in the case, since there can be no plausible reason advanced for leaving in the hands of the patient more of these tablets than the necessities of the case demand. Many obstetric cases are completed without the use of a single tablet, while the same may be said of many surgical cases.

Different sizes, shapes, and color will occasionally alter the situation, but a white tablet must be deceiving.

The treatment of poisoning with the bichlorid of mercury is to empty the stomach by emetics—apomorphia, mustard, or a simple mixture; administer milk and the whites of eggs, but remember the albuminate of mercury thus formed must be removed, so that emetics will be again needed; give olive oil in plentiful quantity. The use of the stomach pump will be the decision of the medical attendant. If there is much corrosion a perforation may result. Freshly prepared hydrated ferrous sulphid is a positive antidote, but rarely on hand quick enough to be of service (Bouchardat).—L. E.

The Virginia Health Department

Is conducting its fight against typhoid fever from base-laboratories in Richmond and Roanoke, under direction of Dr. Allen W. Freeman. Dr. L. L. Lumsden was appointed from the U. S. Public Health Service to assist the State Department in its work again this summer, and he has charge of the laboratory in Roanoke, and assisted by P. A. Surg. Hugh de Valin, also of the Public Health Service, and Dr. J. A. Waddell, of the University of Virginia, is studying the epidemics that occur in the western part of the State.

It is generally conceded that the present year is an unfavorable one for typhoid fever, and the disease can only be successfully fought with the co-operation of the profession and the public. In addition to asking for a prompt notification of cases, the Health Department has offered to sell the antityphoid vaccine at cost to persons who wish to secure immunity from the disease. Three treatments are necessary for an immunity which lasts a year, the injections to be given at ten-day intervals. The Board advises that the vaccine should be administered by physicians, and furnishes it in individual syringes for 90 cents and postage. Treatments for ten persons can be had for \$2.10 and post-

age. There is practically no inconvenience from the vaccination, though a reaction varying from the discomfort of a sore arm to a sickness of not more than one day sometimes occurs.

Stuart Circle Hospital,

Richmond's latest addition to private hospitals was opened July 15, at which time the medical profession of the city and the public generally were invited for the reception and inspection of the hospital, and the following day patients were admitted. The hospital is owned and controlled by Drs. Lewis Boshier, Charles R. Robins, Manfred Call, Robert S. Boshier, Greer Baughman, Clifton Miller and R. H. Wright, and Miss Van Vort, formerly superintendent of Memorial Hospital, this city, has been selected as head nurse.

The building is beautifully located at the corner of Monument Avenue and Lombardy Street, and is thoroughly fireproof and equipped with all modern devices, including electric light signals, vacuum cleaners, incinerators, and phones in each room. The sixth floor is made into an attractive roof garden, and the kitchen is located at one end of this floor. One end of the fifth floor is given over to operating, anesthetizing rooms, etc., and the other end is used for the nurses' quarters. The three floors just below this are used for patients, and are single, double or en suite, and with or without bath, as may be desired. There are no wards. The first floor is used for offices, dining rooms, internes' quarters, X-ray and microscopic rooms. A private entrance has been provided for ambulance cases. In every detail, the hospital is a model one.

The Shenandoah County (Va.) Medical Society

Held a very interesting meeting in Woodstock, June 25, though the attendance was not altogether as large as usual. Dr. J. F. Armistead, Staunton, gave an illustrated lecture, exhibiting some X-ray work, with history of cases, and Drs. W. J. Olds, Strasburg, and C. R. Dufour, Washington, D. C., read papers. Dr. S. J. Hoffman, Columbia Furnace, and Dr. William F. Driver, New Market, are president and secretary, respectively. Dr. D. D. Carter, whose death we announced in our last issue, was president of this Society from its organization until the meeting last December. The next meeting will be held in Woodstock in December.

The American Journal of Tropical Diseases and Preventive Medicine,

Published at New Orleans, La., has made its first appearance with July, 1913, and will hereafter be issued monthly at \$2 per annum. Dr. Creighton Wellman is editor-in-chief, and Drs. Chas. Chassaing and Isadore Dyer are managing editors. As its name indicates, it will be "devoted to the publication of original communications and other matter relating to diseases of tropical and subtropical climates and especially the control of such diseases." We congratulate these veteran editors on their work and wish them great success. We commend the journal to all especially interested in these subjects which are becoming of more interest to physicians each year.

The Richmond Health Department,

In its annual report, shows that the crude death rate of this city for 1912 was the lowest for any year, with the exception of that for 1909, since the reorganization of the Health Department, or the lowest without any exception, if the deaths of non-residents are excluded. The death rate from preventable diseases was almost phenomenally low. Diseases of the respiratory system, excluding consumption, caused the greatest number of deaths, and consumption claimed the second place. The average age at time of death was 37 years, 4 months and 24 days, that of white decedents averaging little more than 44 years and the colored about 30 1-3 years. There were 3,069 births reported, the rate among the colored being 1.04 greater than among the white race. The birth rate for both races was higher than that secured for any previous year, which was possibly due to the Vital Statistics law, compelling the registration of births, which became effective the middle of June, 1912.

Recent Changes in Virginia of U. S. Public Health Officers.

Surgeon C. P. Wertenbaker directed, June 28; to take charge of Cape Charles Quarantine during absence of Acting Asst. Surg. MacCaffey on leave.

Surgeon H. S. Cumming directed June 25 to make a sanitary survey of the Potomac watershed for the purpose of an investigation

begun under the supervision of the Director of the Hygienic Laboratory.

Surgeon L. L. Lumsden directed June 30 to resume investigations of typhoid fever in certain rural districts of Virginia, to be selected by the State Board of Health, to determine causes of its undue prevalence, methods of transmission and measures necessary for its control.

P. A. Surgeon Hugh de Valin relieved from duty at the Marine Hospital, Chicago, Ill., July 3, and directed to proceed to Roanoke, Va., for duty in the investigation of typhoid fever in rural communities.

Dr. Ferrell Honored.

It is reported that Dr. John A. Ferrell, Raleigh, N. C., who has, for several years, been in charge of the work in his State for the eradication of hookworm disease, has been appointed to take up a similar work in Washington, D. C., and will report there this month for duty. He will be succeeded in the North Carolina work by Dr. C. L. Pridgen, of Kinston, who has been assisting Dr. Ferrell in this work for some time.

Receiving Station for Pellagra Patients.

It is reported that the U. S. Public Health Service will establish a receiving station for pellagra patients at Spartanburg, S. C., with a view to making a better study into the prevention and treatment of this disease. More than 400 cases are under observation of the Thompson-McFadden Pellagra Commission now working at this point.

Surgeon General Blue Honored.

The honorary degree of Doctor of Public Health was conferred upon Dr. Rupert Blue, Surgeon General of the U. S. Public Health Service, by the University of Michigan in June.

The Virginia Pharmaceutical Association,

In its thirty-second annual convention held at Old Point, selected Richmond for the next place of meeting, and fixed the date as the third Tuesday in September, 1914. Officers elected are: President, C. D. Owens, Wytheville; vice-presidents, H. D. Pettijohn, Leesburg, J. F. Bauer, Richmond; secretary, E. L. Brandis,

Richmond; treasurer, H. S. Eley, Suffolk. It was decided to invite the Rhode Island State Pharmaceutical Association to meet with the Virginia Association next year. The Association went on record as not desiring to ask any special favors of the State Legislature as regards the sale of whiskey or medicines containing alcohol, in the event that Virginia becomes a dry State.

The Fourth International Congress on School Hygiene,

To be held in Buffalo, N. Y., August 25-30, is attracting widespread attention, as it is the biggest effort ever made in this country toward improving the health and efficiency of the school children, and is open to all persons, men and women, interested in this work. Drs. Allen W. Freeman and Roy K. Flannagan, both of the Virginia Health Department, will be among the 300 speakers on the program. Forty thousand dollars has been collected for defraying the expenses of the Congress, and out of this the social features, including entertainments and auto rides, will receive no small portion.

Dr. William J. Mayo,

Rochester, Minn., has been elected foreign correspondent of the Academy of Medicine, of Paris.

Efficiency of Antityphoid Vaccination.

The Bulletin of the Department of Health of the City of New York states that the total number of cases of typhoid fever in 1912 was greatly below that for previous years, and that to June 15, this year, there had been fewer cases in that city than for the corresponding period for a number of years. The Department has on record 900 immunizations which have been performed since January 1, 1913, and, encouraged by the results obtained from antityphoid vaccination, has offered to supply, free of charge, to physicians attending cases of typhoid, the vaccine to be used for the protection of other members of the patient's family.

In reports made from the French Army, it is considered, by comparison with former years, that 2,101 cases of typhoid fever, and 266 deaths from that cause were prevented in 1912, by the vaccination of 62,786 men.

Movements of U. S. Army Medical Officers in Virginia.

Major C. C. Collins arrived at Winchester, Va., Cavalry Camp, July 8.

A board of officers, composed of Maj. P. C. Fauntleroy, M. C., Capt. Wm. H. Smart, M. C., and Capt. A. H. Sunderland, and 1st Lieutenants Robt. Arthur and Alex. J. Smart, all of the Coast Artillery Corps, is appointed to meet at the call of the President thereof at Fort Monroe, Va., August 1, 1913, for the competitive examination of such enlisted men as may be ordered before it to determine their fitness for promotion to the grade of second lieutenants in the Coast Artillery Corps.

A Chiropractic Brought to Trial.

An interesting case, tried in one of our Virginia courts, had to be carried over to the next term of court, because the jury was unable to agree. A chiropractic was charged with practicing medicine without a certificate from the State Board of Medical Examiners, and his defense was based on the contention that chiropractic is not the practice of medicine, as its followers do not use drugs or claim to diagnose diseases. Its aim is to remove all cause of disease, as without cause there is no disease. It will be interesting to note the termination of this case.

Eugenic Marriage Law in Pennsylvania.

The Pennsylvania Legislature has just passed a eugenic marriage law which prohibits the issuance of a marriage license when either of the contracting parties is mentally or physically unfit, or to any man who has, within five years, been an inmate of a county asylum or home for the indigent, unless he can show that the cause of such condition has been removed so that he is able to support a family.

A similar bill providing for eugenic marriages has also been introduced in the senate of the Georgia Legislature.

Georgia Colleges Merge.

The Atlanta College of Physicians and Surgeons and Atlanta School of Medicine have been merged under the name of the Atlanta Medical College, with Dr. W. S. Elkin as dean.

Dr. William A. Pinkerton,

A native of Nelson County, Virginia, and graduate of the University of Virginia, in the class of 1900, has been elected a member of the staff of the Bayonne Hospital, in his adopted home at Bayonne, New Jersey.

The N. C. State Board of Medical Examiners,

At the meeting held in Morehead City, in June, elected Dr. John Bynum, of Winston-Salem, president, and Dr. Benj. K. Hays, of Oxford, secretary-treasurer.

Dr. Joseph Y. Porter,

Key West, Fla., was re-elected secretary of the State Board of Health of Florida, and State Health Officer of that State, at a meeting held in Jacksonville, in June.

Silver Wedding Anniversary.

Dr. and Mrs. J. Howell Way have issued invitations to the twenty-fifth anniversary of their marriage, on the evening of July 31, at their home in Waynesville, North Carolina.

Another Tuberculosis Cure.

It is claimed by a Denver physician, in a paper recently read by him, that he has had 85 per cent. of cures during the past twelve years, from a treatment based upon X-ray work, without the use of any toxins, serums or other agencies.

Dr. Reid Hunt,

Of Washington, D. C., has been appointed professor of Pharmacology, at the Harvard Medical School.

Value of Open Air Schools Demonstrated in Pictures.

Until the opening of schools, the Boston, Mass., Association for the Relief and Control of Tuberculosis will, through the moving picture theatres in that city, endeavor to illustrate the value of the open air schools, by pictures collected from all over the United States. The object of the pictures is to increase the interest of the public in this kind of school, by showing the benefit to the children, and thus stimulate

them to the need of better ventilation in the homes, public buildings and workshops, as well as in the schools.

The National Dental Association,

In session at Kansas City, Mo., the middle of July, passed a resolution providing a commission to take charge of raising by subscription, a million dollar endowment fund for a national research and scientific foundation for dentists. More than \$15,000 was subscribed at the convention.

Virginia State Board of Pharmacy.

There were six registered pharmacists and six registered assistant pharmacists to pass this Board at its meeting in Richmond the middle of July.

New Ward Will Not Be Built for Colored People at City Hospital, Richmond.

We regret to note that after the Administrative Board of this city had recommended the appropriation of \$5,000 for the purpose of building a ward for contagious diseases for colored people at the City Hospital, as announced in our first July issue, the committee on public buildings of the City Council, decided to table the matter, not seeing the need of such a building at this time.

The National Conference of Charities and Corrections,

Which met in Seattle, Wash., July 5-12, elected Graham Taylor, Chicago, president, and William R. Ross, Columbia, Mo., secretary.

Sanitation of Virginia Beach Militia Encampment.

To Dr. Junius F. Lynch, Norfolk, Surgeon-General of the State militia and Surgeon F. K. T. Warwick, Richmond, especially, as well as to other surgeons in charge, much commendation is due for their work in improving sanitary conditions at the Beach, during the recent encampment. They gave of their time, energy and knowledge to eliminate the danger from mosquitoes in addition to the other health work, all of which was done at a comparatively small expense. The greatest inconvenience was caused by the heavy rains.

Some Results of the British Insurance Act.

In addition to the fact that many physicians absolutely opposed to this act in Great Britain have been forced to take service under it to enable them to support their families, and the inconveniences it has put on them, there has been a decided drop in returns from hospitals, and a decrease in the number of matriculates of the medical schools. This shortage may, however, be overcome, as the opposition of the medical men decreases when the law begins to work more smoothly.

Vacancy.—Assistant Physician wanted to fill a vacancy on the Medical Staff of the Central State Hospital, Petersburg, Virginia. Dr. W. F. Drewry, the superintendent, will be pleased to give anyone interested full particulars in reference to the requirements and duties of the position. The salary is \$900 per year, board, etc. (*Adv.*)

Wanted.—A young, well-equipped single physician to take charge of a good country practice for several months or a year. Liberal terms to the right man. *Apply to Dr. Jos. L. McSparran, Hurley, Va.* (*Adv.*)

THE DOCTOR'S ALPHABET.

By Horace Trunnion.

- A—is for Adenoid, right back of your nose.
In patient retirement the Adenoid grows.
- B—is for Boils that appear anywhere,
But worry you most when you can't use your chair.
- C—is for Colic, that in babies delights,
And means for their parents many long sleepless nights.
- D—is for Dysentery, sure that is hell,
And that's about all that I ought here to tell.
- E—is for Eczema, a species of itch
That thrives quite as well on the poor as the rich.
- F—stands for Fevers, thin rivers of fire,
That race through your veins while your hide becomes drier.
- G—is for Gall-stones, they grow in the bladder,
And I'm told there is naught makes one sadder and madder.
- H—is for Haemorrhoids, but in parlance polite
They seldom are mentioned but are kept out of sight.
- I—'s for Insanity, common to all.
Eve was its first victim, hence poor Adam's fall.
- J—is for Jaundice, that turns one deep yellow
And generally plays merry hell with a fellow.
- K—is Kings' Evil, once cured by their touch,
King's tough and the Doctors' don't leave a man much.
- L—'s for Lumbago that comes in your back,
Should you try to turn over you'll hear your soul crack.

- M—'s for Malaria, Measles and Mumps,
Any one of these three will give you the dumps.
- N—is Neuralgia, a horrible pain,
There's naught to take for it—save God's name in vain.
- O—'s Operation, the surgeons' delight,
Who revel in bringing your secrets to light.
- P—is—(see Haemorrhoids).
- Q—is for Quinsy, old fashioned 'tis true,
Most patients now-a-days want something new.
- R—'s Roseola, a false Scarlet Fever,
But the anxious young mother, 'twill often deceive her.
- S—is for Syncope, blessed relief,
When you slumber, unheeding Earth's joy or its grief.
- T—is for Tonsils, once let them inflame
You'll think each damned bone of your body's to blame.
- U—'s Uric Acid which is hard to expel.
It causes rheumatics and makes the joints swell.
- V—is for Varicose Veins in my leg,
How I wish it were off and I'd just a plain peg!
- W—is Whooping Cough, common in youth
And joyful, it racks one with noises uncouth.
- X—is the Trouble the "Doc" can't explain,
But it helps him to visit again and again.
- Y—is the "Yank" that the "Doc" gives with glee
To the shrinking appendix he feels but can't see.
- Z—is the End that must come to us all,
In spite of the Doctors, their drugs and their gall.

Obituary Record.

Dr. Emmet Hall Pomeroy.

We regret to note the death, several months ago, of Dr. Pomeroy, who died in New York City, following an operation for a throat trouble. Born in Lockport, N. Y., in 1850, he received his medical education at the University of Michigan, from which he graduated in 1870. He came to Virginia in 1907, and made his home in this State for several years, moving to Bradentown, Florida, in October, 1911. He was a member of the Medical Society of Virginia and a number of other medical associations.

Dr. Monte Griffith,

A prominent ophthalmologist of Washington, D. C., died at his home in that city, July 11. He was born in Berryville, Va., 51 years ago, and graduated in medicine from the University of Maryland in 1896, since which time he had practiced in Washington. He was buried at Berryville, Va., with Masonic honors. His wife and a large family connection survive him.

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EPILEPSY.*

By JOHN E. WALSH, M. D., Washington, D. C.

There are probably few diseases that have been more written of and studied with a view of discovering the cause than epilepsy and with such disappointing results.

As yet we know very little of this altogether too common malady,—of its cause, treatment and cure. Never having heard the subject discussed in this or any other medical society, I am bringing it to your attention for discussion, and incidentally to mention the use of a drug which has seemed to give good results in a few cases. The general practitioner pays too little attention to individual cases of this disease which come under his care, too often being of the opinion that all such cases are necessarily incurable and being content to prescribe the bromides and pay little more attention to them.

Epilepsy is not an uncommon disease. The exact frequency with which it occurs cannot be closely estimated, owing to feelings of pride and a disinclination on the part of families in which cases exist to inform of the infirmity of their loved ones. However, through the reports made to the Association for the Study of Epilepsy, a fair idea of its frequency can be obtained. From various estimates made by observers both in Europe and the United States, the number is probably about 1 in every 500 inhabitants; that would give in the whole United States an epileptic population of 180,000, and in the District of Columbia 660. In private practice each man has under his care too few cases to make a proper study of them and it appears to me that much good could be

accomplished for the good of these unfortunate individuals, especially those in poor financial circumstances, by the establishment of a ward in a hospital or outdoor service for the exclusive treatment of epileptics.

There have been established and are now being maintained in various States, colonies and hospitals for the care of unfortunates. There are the Connecticut Colony at Mansfield, Craig Colony at Sonyea, N. Y., the Indiana village at Newcastle, the Letchworth village, N. Y., the Minnesota School at Faribault, the Missouri School at Marshall, New Jersey State village at Skillman, and Texas State Epileptic Colony at Abilene; and hospitals—the Kansas State at Parsons, Ohio at Gallipolis, Passavant Memorial, Rochester, Pa., Pennsylvania Epileptic Hospital at Oakbourne, and Massachusetts Hospital at Monson.

No age is exempt from it, it being present in a latent form in infants and appearing in persons of 70 years and over, most persons, however, developing the disease before 20 years of age. Gowers gives the following results of his study of the age at onset. "More than a quarter of the cases begin under the age of 10 years, nearly 50 per cent between 10 and 20 years of age, a seventh between 20 and 30, one-sixth between 30 and 40, only about 2½ per cent between 40 and 50, 1 per cent between 50 and 60, and ½ of 1 per cent occurring over 60 years of age. Seventy-four per cent of the total number of cases begin under 20 years of age."

As to its occurrence in one sex more than the other opinion is divided. Some observers, as Gowers, Fere, and Echeverria, stating that more commonly the female sex is affected than the male; others such as Hare, Boyd, Althaus, and Osler believe that more males are affected; but in studying their figures the preponderance

*Read before the Medical and Surgical Society of the District of Columbia, April 3, 1913.

—one way or the other—is very slight. According to the Census Bureau report of deaths from this disease in the United States from 1860 to 1900 there were 5508 males and 4210 females; this shows an excess of males of about 25 per cent. It is Spratling's belief that more men than women suffer from the disease in the proportion of 20 males to 16 females.

No race is exempt from it so far as is known, and it is particularly prevalent among the negroes in America. Among the causes of the disease all authorities put heredity as the most important predisposing factor. As to heredity, Dr. Everett Flood,[†] in *Observations on Epilepsy*, states that in an analysis of 1200 cases treated in the Massachusetts Hospital for Epileptics, 185 or 15.41 per cent gave a history of heredity, there were 98 males and 87 females. Of the 98 male cases, in 42 the taint came from the mother's side, 34 from the father's, and 6 from both sides. Sixteen of the male cases had brothers or sisters who were epileptics; in 30 of the 98 cases the heredity came from the mother directly, the hereditary taint being—insane, 5; epileptic, 5; migraine, 12; hysteria, 4; neurotic, 4. The direct hereditary taint from the father's side in 19 cases showed insanity in 6, epilepsy 7, migraine 2, neurotic 4. Of the 87 female cases, in 40 the evidence of heredity came from the maternal, 23 from the paternal, 3 from both father and mother, and in 12 cases brothers and sisters.

In 28 cases the hereditary taint from the mother direct was—insanity in 5, epilepsy in 13, migraine in 5, hysteria 2, and neurotic 3. In 12 from the father direct, insanity was shown in 3, epilepsy 3, migraine 3, neurotic 2, general paresis 1, chorea 1.

There was no marked difference in the ages at onset between the male and female cases where heredity was established. There were 80 cases developed under 10 years, 62 between 10 and 20, 20 between 20 and 30 years, 9 between 30 and 40 years, 4 between 40 and 50, 4 between 50 and 60, 1 between 60 and 70. The percentage of cases in which heredity can be traced is given by various observers from 15.41 per cent to 66.8 per cent. Echeverria in 306 cases gives heredity as 25 per cent, R. Reynolds 31 per cent in 38 cases observed, Moreau 32 per cent in 364 cases, Aronsohn 32 per cent in 508 cases, O. Berger

32 per cent in 71 cases, Gowers 40 per cent in 2400 cases, Spratling 56 per cent in 1070 cases, Dejerine 66.8 per cent in 350 cases.

In Spratling's 56 per cent are included all hereditary factors, similar and dissimilar, including epilepsy, insanity, alcoholism, tuberculosis and other diseases. By similar inheritance is meant the inheritance of epilepsy from a parent who had that disease, and dissimilar in which it was acquired not from a parent who suffered from epilepsy but had some other disease of the nervous system as alcoholism or insanity. The proportion of cases due to similar heredity in 1070 epileptics observed at the Craig Colony was 15 per cent in the males, 17 in the females, and in combining the two 16 per cent for all cases. Of the cases due to dissimilar heredity Spratling gives alcoholism as the cause in 16 per cent of the male and 12 per cent of the female cases. Insanity was found as the cause in 7 per cent male and 10 per cent female. Louise G. Robinovitch in the *Genesis of Epilepsy* gives the main cause of epilepsy as ancestral alcoholism. As a result of the clinical study of the 140 cases of epilepsy admitted to St. Ann's Asylum, Paris, during the years from 1887 to 1889, 90 had direct parental alcoholic heredity, making a percentage rate of 64. Other hereditary causes given are tuberculosis and syphilis. The more active causes are cerebral palsies, which show themselves in the form of hemiplegias, diplegias, or paraplegias. Of the 1070 patients treated in the Craig Colony, according to Spratling, 116 or 11 per cent had epilepsy as a result of this cause. Dentition is given as an exciting cause. Spratling, Gowers, Fere, Holt, J. L. Smith, Voisin, Graeme M. Hammond, all concur in the belief that difficult dentition can be a cause of infantile convulsions, which in those with a tendency to that disease develops into true epilepsy.

Scarlet fever, whooping cough, typhoid fever, typhus fever, yellow fever, pneumonia, la grippe, malarial fever, diphtheria, measles and meningitis are given by Spratling as causes. Emotional shock, as fright, excitement or anxiety is given as a cause. I saw a very interesting example of this a few years ago at one of the Masonic fairs held here. On the opening night, among the earliest visitors were a young woman and a young man, both probably between 20 and 25 years of age. As soon

[†]Boston Medical and Surgical Journal, Vol. 159, No. 125.

as they entered Convention Hall the young woman fell to the floor in an epileptic convulsion. The young man turned around and looked at her a few seconds and then fell on the floor in a typical epileptic fit. They were both taken to the room used as an emergency hospital and in about 20 minutes or half an hour regained consciousness. The young woman gave a history of having had epileptic attacks for some years; the young man could not understand what had happened to him and said he had never had an attack like it before. Whether he had any subsequent attacks I do not know.

Traumatism is a fruitful cause resulting in epileptic seizures of the Jacksonian type, which appear locally in one arm or by or on one side of the body. Trauma as the cause, as would naturally be supposed, is less common in women than men on account of the former being less exposed to the liability to injury. In 509 female cases under Spratling's care, 31½ per cent only were due to traumatism, while in 814 men it was the cause in about 8½ per cent. Other exciting causes given are gastrointestinal disorders, lead poisoning, disorders of menstruation, pregnancy and maternity, electric shock, heart disease, and eye strain. The presence of adenoids was given as a cause of epilepsy in 8 cases by C. Tsiminakis.* His patients were children between 10 and 15 years old and one man aged 32. In the former the convulsions ceased after removal of adenoids but in the man whose operation was of recent date they still persist but much reduced in frequency. He thinks a reflex origin is more commonly the cause than generally suspected, and advises the removal of the source of such irritation before the case becomes so chronic that true epilepsy is installed.

As to the part of the nervous system involved in epilepsy the medulla oblongata as the primary seat of the disease was first suggested by Marshall Hall in 1851. He noticed the correspondence of loss of blood and epileptic attacks in general and attempted to adduce facts proving that a diminution of blood in the medulla oblongata produced the epileptic seizures.

Brown-Sequard also made exhaustive studies of this disease, but differed from Hall in believing that the seat of epilepsy was variable and susceptible of proceedings from an excita-

tion of the whole cerebrospinal system. He ascribed the loss of consciousness to the contraction of the blood vessels of the brain and accumulation of venous blood charged with carbonic acid. The theory of the medullary origin which held for a long time even by Echeverria has now been abandoned and the region of nervous discharge in epilepsy considered as the cerebral cortex. Dr. Thomas P. Prout and Dr. L. P. Clark working together made some very interesting post-mortem studies of the brains of persons who died after having been affected with this disease. They state that one of the most constant conditions found in epilepsy is more or less decided alteration in the texture of the skull which is often accompanied by changes in the meninges. The skull is usually thickened, more especially in the occipital portion though sometimes general. The density of the skull is usually increased though this is not constant. The increase in density is accompanied by an increase in weight, the skull of an epileptic being much heavier than that of a normal person of the same age. Their opinion is that the skull changes are due to repeated extensive venous congestion accompanying the paroxysms—deformities of the skull and facial asymmetries were noted. Muller found only 4 out of 43 epileptic heads examined which were to his mind normal.

The skull changes are almost always accompanied by changes in the meninges, especially of long standing cases and particularly of the infantile cerebral hemiplegic types. The dura is thickened and adherent to the skull and excessively adherent to the pia. In some of the cases they examined the morbid process in the dura mater had undergone calcareous degeneration which, in one patient, 41 years old, who had an old infantile palsy, extended over the whole of one side of the brain surface. The changes in the pia mater, while frequent, are not constant and characteristic. Œdema and congestion are quite common, especially in old epileptics, and are associated with more or less brain wasting, and incidental increase in the cerebrospinal fluid. There is often a thickening of the pia and adhesions to the brain surface.

In the brain the most frequent lesions found are the old lesions of infantile cerebral hemiplegia. Of the cases of infantile hemiplegia and

**Wiener Clinische Wochenschrift*, Vienna, XXI, 40.

diaplegia which became epileptic the percentage is variously stated from 29 to 96 per cent. Probably 40 per cent would be the proper percentage.

Sclerosis of the cornu ammonis is one of the most frequent gross conditions found in epilepsy. Tumors of the brain comparatively rarely give rise to true epilepsy unless developing in or very near the motor region. Cysts in the brain cortex of epileptics are not infrequent, especially in those whose disease comes on in middle life. Following death from a severe epileptic attack or from status epilepticus, the cerebrospinal system often presents small punctate hemorrhages mostly located in the cortex. As to the portion of the brain which is diseased in epilepsy, Prout and Clark, after studying the work and findings of other investigators, such as Fere, Chaslin, Sommer, Voisin, Agustini, Cololain, Krainsky, Prus, Hering, Redlick, and others, make the statement that the facts obtained are very suggestive of a diseased state of the sensory elements of the cortex as a cause for the epileptic convulsions. As a result of a study of the cortex, in 20 epileptics, they found a most striking change in the cells of the second cortical layer, distinctly sensory in type. They found the cells swollen, sometimes twice their normal size, the nucleus large and granular with indistinct outlines. The chromatic substance in the cells having almost disappeared, the nucleus is often difficult to determine. The nucleolus is often absent. They found in making sections that the intranuclear network being destroyed rendered the nucleolus a loose body which is easily abstracted. They regard this as particularly important as the nucleus is essential to the life of the cell, and any morbid condition affecting it for a period of time causes its death. They assume, therefore, that the poison in epilepsy is a nuclear poison which shows a special predilection for the cells of the cerebral cortex. They found also an extensive invasion of the cortex with leucocytes, especially in status epilepticus and serial fits. These leucocytes were found in the peri-cellular and peri-basilar lymph spaces as well as throughout the cortical substance. A neuroglia hyperplasia was frequently found which was especially marked in the outer layer of the cortex. They explain this as being due to the death of the cells and the neuroglia, being capable of proliferating under chemical

stimulation, grows and fills the spaces left vacant by the dead cells. They go into the subject at great length and, as a result of their work, make the following statement regarding the pathology of epilepsy:

1.—“Epilepsy is a cerebral disease attended and followed by profound and diffuse cortical degeneration.

2.—“The morbid changes concern chiefly the destruction of the nuclei of the cells of the sensory type from which the primary departure of the disease originates. Its terminal pathology is a progressive gliosis more or less marked and diffuse.

3.—“Epilepsy is essentially a sensory phenomenon with a motor manifestation.

4.—“Its etio-pathology rests with a variety of toxic or autotoxic agents not as yet definitely isolated or determined.

5.—“The disease is engrafted upon a cortical organic cellular anomaly which is induced largely by a faulty heredity, the exact anatomic nature of which is not known.”

The principal types of epilepsy are grand mal, petit mal, Jacksonian, and psychic. Spratling also mentions other types, such as serial attacks, reflex epilepsy, epileptic equivalents, partial epilepsy, tetanoid epilepsy, hystero-epilepsy, and myoclonus epilepsy. Some of these are more or less rare and are but variations of the first four mentioned. Seizures of the grand mal type are more common than any other. In 1325 cases mentioned by Spratling, 60 per cent of whole number had convulsions of this type; 5.4 per cent of the number suffered from petit mal. Of the purely psychic form only 4 of the total number could be classed under this head, and of Jacksonian epilepsy there were 9. The cases of a mixed type, that is grand mal and psychic, or petit mal and psychic, stand next in frequency to grand mal, 32 per cent of the entire number suffering from mixed forms of the disease.

The attacks of grand mal partake of the following characteristics: First there are tonic contractions of the muscles of the body, general in character, then clonic contractions, and then the stage of stertor or coma. The attack comes on suddenly, as a rule the first thing unusual noted being a moan or a sigh. The patient sits or stands rigid for some seconds, eyes set and staring and face pale, then he drops to the floor in tonic contractions.

The different stages are thus described by Osler: "In tonic spasm the head is drawn back or to the right and the jaws are fixed. The hands are clinched and the legs extended. This tonic contraction affects the muscles of the chest so that respiration is impeded and the initial pallor of the face changed to a dusky or livid hue. The muscles of the two sides are unequally affected so that the head and neck are rotated or the spine is twisted. The arms are usually flexed to the elbows, the hand at the wrist, and the fingers are tightly clinched in the palm. This stage lasts only a few seconds and then the clonic stage begins. The muscular contractions become intermittent; at first tremulous or vibratory, they gradually become more rapid and the limbs are jerked and tossed about violently. The muscles of the face are in constant clonic spasm, the eyes roll, the eyelids are opened and closed convulsively. The movements of the muscles of the jaw are very forcible and strong and it is at this time that the tongue is apt to be caught between the teeth and lacerated. The cyanosis, marked at the end of the tonic stage, gradually lessens. A frothy saliva which may be blood-stained, escapes from the mouth. The faeces and urine may be discharged involuntarily. This stage rarely lasts more than 2 or 3 minutes, the contractions becoming less violent, and the patient gradually sinks into the condition of coma. The breathing is noisy or even stertorous, the face congested but no longer intensely cyanotic, the limbs relaxed and the unconsciousness is profound. After a variable time the patient can be aroused, but if left alone he sleeps for some hours and then awakes complaining only of slight headache or mental confusion."

The attack may or may not be preceded by an aura, and a moan or cry is not invariably present.

In petit mal the seizures partake of the features of grand mal, including loss or disturbance of consciousness and general muscular commotion with lessened severity.

In Jacksonian epilepsy the muscular contractions are localized. The clinical manifestations of psychic epilepsy have to do with the mental activities only of the individual, the motor side or part of his brain not being involved in any manner or degree. William Prior Letchworth, in *The Care and Treatment of Epileptics*, mentions an interesting case of

psychical epilepsy, taken from the Medical Minutes of the Craig Colony. A young civil engineer who later became a locomotive engineer was a victim to this dangerous form of epilepsy. "One day he was seized with a fit while travelling on the railway to Newburgh. Coming to a station, he deliberately left the train, walked into the telegraph office and, being a strong man physically, managed to eject two operators who were on duty and who hastily fled. Knowing something of telegraphy and having the room entirely to himself, he proceeded to send a message to a man in the main office with whom he was acquainted. After copying the message he had sent and placing a copy in his pocket book, he arose, locked the door of the room and went to his home in Newburgh, taking the key with him. When found by a policeman next morning he knew nothing of what had occurred. He remembered the attack coming on, but could recall nothing of what happened afterward, nor could he tell how he managed to get home. The key in his pocket and also the copy of the message were indubitable evidence of the truth of the officer's statement."

Status epilepticus is thus defined by L. Pierce Clark: "Status epilepticus is the maximum development of epilepsy in which one paroxysm follows another closely and the coma and exhaustion are continuous between seizures. It is sooner or later attended by a marked rise in temperature, pulse and respiratory frequency. The latter accompaniments are the indices to the degree of exhaustion and its fatality." The mortality in this form of the disease is probably about 33 1-3 per cent.

That epilepsy is not necessarily incurable is shown from the fact that Dr. Spratling states that "Even with an almost entirely chronic class of cases we may expect to cure about 5 per cent." "If all could come under treatment early enough, this percentage could undoubtedly be doubled or trebled." Other writers get a proportion of cures from 4 to 12 per cent.

The treatment of epilepsy may be classed as general, medical, and surgical. By general is meant the complete control of the patient as to his daily life, including direction as to his diet, outdoor exercise, occupation, and so forth. In private practice it is difficult and in fact practically impossible to have the necessary control of the patient. Herein lies the advantage of the

colony or hospital for such cases. The patient should remain outdoors as much as possible, avoiding excessive physical labor and exhausting fatigue. He should be engaged in some light occupation, such as gardening, seed gathering, dairying, herding cows and sheep, cultivating flowers, raising chickens, and such like employments. He should be allowed to indulge in athletic sports in moderation. He may safely play tennis, golf, baseball, and football. Smoking in young epileptics should be forbidden. The diet must contain a proper proportion of the 3 groups of foods, albumen, carbohydrates and fats. He should be taught to eat in moderation, at regular intervals and plenty of time taken in consuming the meal.

Many drugs have been recommended and used in the treatment of this disease, but the bromide treatment, or a modified bromide treatment, seems to give the best results. Among the drugs that have been recommended are borax, which was first suggested and used by Gower in 1879, chloral hydrate, amylene hydrate, nitroglycerine, chloretone, zinc, urethan, solanum carolinense, simulo, trional, the coal tar derivatives and chloroform. Electricity and hydrotherapy have also been used. Among the combined bromide treatments may be mentioned Flechsig's. His method consists in the daily administration of the solid extract of opium in gradually increasing doses up to 12 or 15 grams daily. This takes 5 or 6 weeks usually, when bromide is substituted for the opium. This treatment is said to be of distinct benefit in chronic idiopathic epilepsies which have not been benefited by the bromides, but is contraindicated in recent epilepsies. The use of bromides in place of the chlorides in the food was advocated by Toulouse and promises to give good results. This treatment, however, is not easy of application except in a hospital or institute for epileptics. Bechterew's treatment by the use of *adonis vernalis* and potassium bromide, varied with *digitalis* and sodium bromide, has been productive of permanent cures according to Bechterew and Spinhager. While the potassium salt of bromide has been the one most commonly used since its introduction, for the treatment of this disease in 1847, by Laycock, the other salts, as the strontium and sodium, are just as efficacious. In my own cases the bromide of soda is used.

The drug treatment employed in the cases

that will be mentioned consisted of the administration, beginning at first four times daily and later 3 times, of a combination of *adonidin*, the active principle of *adonis vernalis*, and bromide of soda, a modification of Bechterew's. My only knowledge of the physiological action of *adonidin* is that it is very like that of *digitalis*. It raises the blood pressure, increases the force of the heart's action which becomes slower and more regular, and is a diuretic. It is evidently not accumulative, as my patients have taken it continuously for from 6 months to two or more years without any apparent ill effects. It seems to prevent the stupifying effect of the bromides, increases the mental vigor, and prevents the *acnes* so common in persons who take the bromides for a long time. The dose given is 1-16 of a grain of the *adonidin* and 15 grains of the bromide in some eligible vehicle.

Case 1.—G. D., white, male, aet. between 40 and 45. Has been an epileptic since the age of 12. Family history on both sides negative as to epilepsy, insanity or alcoholism. No personal history of traumatism. Attacks sometimes partake of the nature of *petit mal* and sometimes *grand mal*, and a few years ago suffered for nearly a week or two with serial epilepsy. He had been treated by other physicians since he was 12 years old with the bromides and had convulsions nearly every week, never going more than three weeks without one or more. About two years ago I began treatment by the administration of *adonidin* and bromide of soda 4 times daily and regulating his diet and mode of life so far as I could. He began to improve very quickly. Whereas he was broken out with a bromide rash, was thin, and had a very peculiar look in his eyes, he soon lost all this and looked for a time the picture of health. He did not have a convulsion for 3 months and during the first year of treatment only had five attacks. He seemed mentally and physically much improved. I am sorry to state, however, that owing to the fact he was not under proper control after the fits had apparently stopped, he would not take the medicine with any degree of regularity, was imprudent in his eating, and in consequence is not doing so well as during the first year of treatment.

Case 2.—A. G., white, female, aet. 26. Had been epileptic since the age of 11. Family

history, mother and father both alcoholic and had been so years before birth of the patient. The attacks came on about the beginning of each menstrual period and continued for a week or ten days; during this time the patient was insane, and had convulsions every day. She was given the same treatment, beginning about a year and a half ago; does not have any attacks and feels perfectly well so long as she takes the medicine. She moved to Kentucky, and I have not heard of her the past 4 or 5 months.

Case 3.—P. D., white, female, aged 16. Family history, father and mother both neurotic, patient a bright, well nourished and good looking girl, began having attacks of petit mal about 3 years ago. Began treatment with the adonidin and bromide about a year and half ago and patient had no more attacks until she went to New York last September, when her father, who is a physician, substituted the iodide of potassium for the adonidin and sodium bromide. She had two convulsions while there and was broken out with a bromide rash. On her return to Washington in October or November, the adonidin treatment was given again with the result that the eruption disappeared very quickly and the patient has not had an attack since.

Case 4.—F. B., white, male, aged 17. Family history negative. Epileptic since age of 13, having attacks of petit mal, accompanied by a cloudy state of his mind and defective mentality. Attacks occur every 3 or 4 weeks. Put him on the adonidin treatment in September, 1912, and he has had no convulsions since. His memory is better, and he has much more hopeful outlook on life.

Case 5.—T. S., white, male, aged 19. Family history unknown. Epileptic since age of 10. Body and face covered with a bromide acne, mind very defective, memory almost nil, epileptic attacks every day. Only took treatment for a month or two but during that time the intervals between the attacks were lengthened so that sometimes he went a week or ten days without a fit. His skin cleared up somewhat, him memory improved, and he was so much better mentally that he could go all over the city by himself and find his way about, something he could not do previously. He stopped treatment and I have not heard from him since.

Case 6.—H. S., white, female, aged 19.

Family history negative as to insanity, epilepsy or alcoholism. A bright, intelligent, pretty girl, a graduate of the high school, began having epilepsy of the petit mal type at the age of 15. During a year and a half she had 34 attacks. Treatment began in fall of 1910. She has had no attacks from that day to this and has taken no medicine for nearly a year.

An inspection of these cases, while not demonstrating a marvelous cure for epilepsy, does show an improvement in every case. One case has not had an attack for two years, and while I realize the difficulty of setting a time limit for the cessation of the convulsions to establish a recovery, and while the fits in this case may recur, I am glad to find something that will stop the attacks for a time or even lessen the frequency and severity of the convulsions. All of the patients, except Case 6, had been treated with bromides, but with no beneficial results until combined with adonidin. The only treatment Case 6 had was with this combination, and she has now had no attacks for more than a year after stopping the medicine. How the beneficial effects of the drug are exerted I do not know unless it is as Donath says: "In its action in tranquilizing the circulation and promoting diuresis, which keeps the toxic matter eliminated."

In conclusion, I would call your attention to the long continued administration of the bromides in combination, without producing the usual eruption, and the freedom of the patients from the depression and mental impairment as when bromide is given alone.

202 East Capitol Street.

SOME UNUSUAL COMPLICATIONS OF TYPHOID FEVER.*

By E. E. FEILD, M. D., Norfolk, Va.

In the treatment of typhoid fever, one meets with complications that are unusual and interesting, and are explainable in a manner wholly impossible prior to the discovery of the bacillus of Eberth.

The length of this paper will not permit me to speak of all the complications of typhoid, nor go into the pathology of the disease further than to say that it is primarily a bacteriemia, or septicæmia, and the various complications

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are caused by the effect of the organism or its toxins on the individual tissues affected.

For thirty years it has been conceded that Eberth's bacillus is the cause of typhoid, although, owing to the apparent insusceptibility of the lower animals to the disease, it seemed impossible to satisfy all the requirements of Koch's law.

The recent experiments of Metchnikoff and Besredka have shown the chimpanzee to be susceptible to typhoid; and the blood examinations of such monkeys ill of the disease have demonstrated the presence, not only of the agglutinins, but also of the bacillus of Eberth.

It has been shown that the typhoid bacillus is capable of producing abscess or active inflammation in the tissues, as in the ulceration of the patches of Peyer, or as endocarditis or cholecystitis; and there is a growing suspicion that it may also directly affect the nervous system, although heretofore the toxins or endotoxins have been credited with causing the nervous manifestations.

I will report a series of cases which have come under my observation, making such remarks under each as seem to be pertinent.

Case 1. Cholecystitis and phlebitis.—Mrs. M. W.; age 28; white; wife of a naval officer. Case of mild typhoid fever lasting 28 days. Temperature ran a typical curve, but never exceeded 103 F. Widal positive, and bacilli present in blood; no delirium; bowels slightly constipated. Patient had practically no medication other than an occasional laxative. A generous diet, principally of carbohydrates, was insisted upon, and patient left the bed in better condition and weighing more than when she took it.

On the 28th day, temperature rose slightly, and patient complained of pain in right leg. This was found to be due to an inflammation of the veins, and a considerable thrombus in the saphenous at its junction with the femoral. Hexamethylenamine was given, and application of ichthyol and glycerine made, and the limb bandaged. She left the hospital in a few days and was able to walk very comfortably in about 4 weeks.

About 8 weeks later she came into my office suffering from an acute attack of cholecystitis, and was deeply jaundiced. The symptoms cleared up in a few weeks, and she left for another station. A letter from her states that

she has had no recurrence, and has been in better health for the last two years than ever before.

This case seems to emphasize the causal relation between the typhoid bacillus and gall stones, and to show the method of producing so-called "typhoid carriers." For the prevention of these conditions, my practice is to administer hexamethylenamine during the illness unless there is some contra-indication, and afterwards, until the stools fail to show the presence of the bacillus.

Case 2. Epididymo-Orchitis.—Mr. C. D.; white; civil engineer. Severe case of infection. Widal positive. Typhoid bacilli present in the blood. High temperature with typical curve. Some delirium. Typhoid spots in such abundance that patient looked as if broken out with measles. No history of venereal disease of any kind.

Patient was convalescent in 5 weeks, when he developed a severe inflammation of the right testicle, which subsided under treatment with ichthyol and the ice cap, and support to the organ. This complication is interesting on account of its rarity. Osler's "Modern Medicine" states that Kinnicutt had found only 53 cases from all literature reported.

It occurred only four times in about 1600 cases in Johns Hopkins Hospital, reported by McRea, or 0.27%.

Since seeing the above case, I have seen another in an old gentleman of 75, through the courtesy of Dr. Alpheus Fields, of my city.

These cases are interesting, mainly on account of their rarity, and the possibility of attributing improper conduct to the innocent.

Case 3. Mastitis and Neuritis.—Miss E. F.; stenographer; white; age 25.

When first seen, had been complaining for about ten days of headache and general malaise, which had been diagnosed by a druggist as malaria, and for which quinine was administered. She had no distinct chill. Blood was not examined for malaria because of administration of quinine. Five grains of quinine hydrobromate were ordered to be given at 3 hour intervals, for 4 doses but it had no effect except to deafen the patient and render her uncomfortable. Temperature was comparatively low, but ran a typical curve. Pulse was weak, and patient's low vitality was shown by a weak resistance to the disease, and a tardy appearance of the Widal test in the third week. There was

an abundant crop of rose spots, which appeared about this time. Temperature then rose to 106 F., with a rapid feeble pulse, and occasional delirium.

At the end of the fourth week, both breasts became inflamed and tender. There was considerable tumefaction, but no formation of pus, and the inflammation yielded readily to applications of ichthyol and glycerine, and the ice cap.

This complication is as rare as the previous one, occurring 4 times in about 1600 cases in Johns Hopkins Hospital, reported by McRea, a percentage of 0.27. As soon as this inflammation subsided, the patient was taken with a violent attack of neuritis in both arms. She was unable to move either hand, and although she bore the pain bravely, it was necessary at times to administer morphine to render her suffering bearable.

The nerve trunks could be traced by their lines of tenderness to the touch. The patient was convalescent in about 6 weeks, and, after an uneventful recovery, went to work 2 months after leaving the hospital.

Cold sponge baths were given freely in this case, and it is possible that their use may have had some effect in causing neuritis.

I have never seen a case of so-called "tender toes" in my practice.

Case 4. Acute Gastritis and Hemorrhage. Two Relapses.—Mrs. R. H.; age 42; white. Was taken with a violent chill in the evening, and next day with symptoms of acute gastritis. The high temperature, severe pain, nausea and vomiting, were suggestive of food poisoning, and so diagnosed; but the persistence of the temperature and its gradual assumption of the typical curve, with an early appearance of the Widal test, soon cleared up the diagnosis. A few rose spots appeared about the twelfth day. There was a slight mitral lesion, which had been observed during a prior illness.

Except that the gastric symptoms made it somewhat difficult to nourish the patient, the case was typical, and temperature reached normal on the 28th day, when the patient had a violent hemorrhage from the bowel, and, owing to her weak heart, was in a state of collapse for quite a while. She then rallied and for 12 days was free from fever, and improved rapidly. Fever then commenced to rise, and she had another attack as typical as the first, and lasting 3 weeks. After a second interval of 2 weeks,

she had a third attack which lasted seventeen days.

After the gastric symptoms subsided, the patient was given as generous a diet as possible, mainly of carbohydrates.

Except for a slight exaggeration of the heart lesion, and some nervous symptoms, the patient seems to be entirely well, 14 months after leaving her bed.

Case 5. Perforation of Intestine.—H. D.; age 23; white; student; athlete. Was taken with a distinct chill, followed by fever which rapidly became typical. No Widal was made, but all symptoms were characteristic, except possibly the non-appearance of rose spots. On the eighth day, he was removed to the hospital, feeling so strong that he insisted upon walking down stairs to the ambulance. Two days later he was taken with a second chill, and a pain in the left lower quadrant of the abdomen. The pulse became weaker and more rapid, and the leucocyte count rose to, I think, 17,000. A diagnosis of perforation of the intestine was made, and the following morning I opened the abdomen. A circular perforation about 0.5 cm. in diameter was found in the ileum, 12 or 14 inches from the ileo-cecal valve, through which the intestinal contents were pouring. The peritoneal cavity contained considerable quantity of this matter. The perforation was sewed up, the intestinal cavity carefully sponged dry, and then the abdomen closed with free drainage.

The patient rallied somewhat, but died a few hours later. It seems to me that the lesson to be learned from this case is not "Shall we operate in perforation?" but "When shall we operate?" I firmly believe that, if I had operated 12 hours earlier, I would have saved my patient. It is my opinion that the operation should be performed as soon as the diagnosis of perforation is made, and the chances of recovery decrease in an inverse ratio of the square of the time of delay.

The operation is not a difficult one, nor is it attended necessarily with a great deal of shock. Of course the mortality is high, but the patient is in extremis anyway, and this seems to me to give him the only chance of recovery.

Osler's "Modern Medicine" gives the mortality rate of 3% of all cases of typhoid, and 40% of all deaths from typhoid as caused from perforation.

Case 6. Typhoid Spine.—H. H.; British

sailor; white; age 42. Was admitted to St. Vincent's Hospital about the beginning of the third week. Pulse dicrotic; Widal positive; rose spots present in small number; constipation; typical curve, becoming normal on 28th day. One week later had chill with temperature of 104, yielding to quinine. Patient was convalescing very satisfactorily and walking about the ward 4 weeks later, when he was taken with a severe pain in the left side of chest, and a slight rise of temperature. Although there were no physical signs, this was diagnosed as diaphragmatic pleurisy, and the pain partially relieved by strapping the chest with Z. O. adhesive plaster. In 4 or 5 days the pain recurred on the right side, and was similarly treated, but without great success. Patient then took his bed, suffering considerable pain, which was greatly aggravated by any attempt at moving him. There were distinct gastric crises, closely simulating those of tabes, great abdominal distention, nausea, vomiting, with constipation, and paralysis of the bladder, requiring the use of the catheter for several days. The reflexes were normal. There was also a sensation as if the patient had on a tight girdle. Patient had exaggerated ankle clonus; no tremor of hands. Pupils responded perfectly to light; no Argyle-Robertson pupil. There was a great tenderness over the lumbar and lower dorsal spine, as well as a short distance on either side. The abdomen was also tender. The urine was normal, and showed no kidney involvement. At no time was he delirious, nor were there any mental symptoms. His back was strapped with Z. O. adhesive plaster, which gave him great comfort, and he left the hospital convalescent about 4 weeks from the commencement of his second attack. I have reported this a case of "typhoid spine," as it agrees in history and symptoms with those cases in literature to which I have had access. I neglected to state that, at the patient's request, I gave him a dose of salvarsan, thinking it might have some effect in clearing up the diagnosis, as he had had a chancre a few years before. It seemed, however, to have no effect on the trouble.

McRea (*Amer. Jour. Med. Sci.*, 1906, page 878) reports two cases of typhoid spine; one, however, in which the infection was with the para-typhoid bacillus. He believed that the lesion was a spondylitis with involvement of the lateral ligaments, and a deposit of bony salts in

the tissues. In both of McRea's cases, Baetjer demonstrated with the X-ray the presence of bone salts, in the lateral ligaments and intervertebral discs.

Typhoid spine appears more often during convalescence, and three-fourths of the cases reported have been among males. Among the cases reported, I have found only one other in which the "girdle sensation" was mentioned.

I have called your attention to these cases with the hope that a full discussion may show how to avoid the complications. In my opinion, the best plan seems to be avoidance of so-called anti-pyretics, regulation of the bowels, administration of hexamethylenamine to disinfect the gall ducts and urinary tracts, and a generous diet principally of carbohydrates. I believe that the fullest possible diet is necessary, not only to prevent tissue waste, but also to produce a sufficient number of leucocytes to combat the leucopenia, and a plasma containing those system protecting antibodies about which we discourse so learnedly and know so little.

ABDOMINAL ADHESIONS.*

By J. T. BURRUS, M. D., High Point, N. C.

I am fully convinced, after observing a great many surgical cases and studying living pathology, that there is no field which demands more painstaking procedure than dealing with adhesions in the abdomen. I think of the adhesions as they occur in three locations—the upper zone, the middle zone, and the lower zone. The upper zone gives adhesions which arise from the gallbladder, the liver, the pancreas, the stomach, and the duodenum; that of the middle zone comprises the greater part of the intestines, the omentum, and the appendix; while the lower zone comprises the pelvic organs.

The pre- and post-adhesions in the abdomen differ in that the pre-adhesions are caused by some inflammatory process which has gained access to the serous surface by extension of inflammatory process or the invasion of micro-organ, producing bands of adhesions between the viscera or between the viscera and the abdominal wall or both.

The post-adhesions are usually following laparotomy. Often where the tissues are not gently dealt with, or where a rigid antiseptic technic has not been observed, in the greater

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percentage of cases we find the pre-adhesions more often than post-adhesions. This, I think, is due to the rigid antiseptic technic practiced by all latter-day surgeons. There is no better place to test a surgeon's real ability than in the handling of abdominal adhesions. No one should ever open an abdomen until he has made himself proficient in this field of work, for it is here the end results of our cases hinge and often-times the lives.

A few years ago the laity was satisfied if their friends or loved ones passed through a surgical ordeal and came out with their lives. Not so today—they are demanding results.

"Adhesions around the gall-bladder, binding it to the stomach or intestines or to the omentum, produce much interference with digestion, therefore interfering with metabolism, causing pain, nausea, vomiting, loss of weight, and cachexia. In the middle zone we find adhesions producing nausea, vomiting, indigestion, non-assimilation, malnutrition, and nervousness. Adhesions in the lower zone do not cause so much disturbance in nutrition, but the influence made on nervous phenomena is very great. The treatment is always surgical except in the post-operative adhesions; then we should never operate under nine to twelve months after an operation, unless adhesions are responsible for obstruction to the bowels."—(Walker.)

Owing to the influence of the absorbing powers of the peritoneum the adhesive bands are absorbed if the foci have been removed; because of this fact a great many of these cases are reported to have been cured medically. The pre-adhesions require, almost universally, surgical attention, because when we can reach a case where the diagnosis is made adhesions are usually too strong to be absorbed. Many times the abdomen has been opened for some other condition to find excessive abdominal adhesions.

Adhesions are treated according to the density, length, vascularity, and the character of the adhesive surface. If fragile, they may be torn by a sponge or the finger; if dense, they should be cut; if vascular, tied, and great care should be used in the separation of such adhesions.

Sempkin says: "We have a law for the prevention of cruelty to animals; we should also have a law for the prevention of cruelty to tissues." And in no part of the field of surgery is this statement truer than it is in the handling

of abdominal adhesions. Many are the cases that the surgeon has opened for gall-stones to his chagrin; when the gall-bladder was reached, no stones were found. He is again surprised when he sees his patient recover from the symptoms which led him to make the operation. He has done good and has unknowingly cured the patient by passing his hand around the gall-bladder, separating the adhesive bands or cobwebby mass that has bound the gall-bladder to the liver, to the stomach, and perhaps to the intestines, or perhaps a stronger band to the fal-ciform ligament.

Perhaps there is no better way to help each other than by relating our cases. Therefore, I wish to speak of a case which I had two years ago—a patient twenty-two years of age with a decided history of frequent attacks of severe pain over the region of the gall-bladder. I diagnosed gall-stones. This was in keeping with the diagnosis which she brought me from no less than four or five experienced clinicians. I advised an operation. The gall-bladder was exposed—no stones existed, but there was a network of adhesions around the gall-bladder, binding it tight to the adjacent viscera. These adhesions broken up, the abdomen was closed, and the patient made a quick and successful recovery, gaining her strength and weight very rapidly, and has, since that time, had no symptoms of supposed gall-stone colic.

Another: the second was a man forty years of age, giving a history of frequent and severe paroxysms in the left upper abdominal quadrant. Such pains would necessitate the use of hypodermics of morphine to make the pains at all bearable. Just what this condition was I did not know—I did not say,—but that there was something in the region which was directly responsible for the symptoms was evident. I advised an operation. Left rectus incision was made, the splenic flexure of the colon exposed. This had a heavy broad band encircling the entire gut. This band passed back and adhered to the abdominal wall, which adhesion had well nigh closed the entire lumen of the bowels. I excised this adhesion and closed the abdomen. The patient has gained in nutrition and strength back to his former weight, and not a symptom or the slightest evidence of a pain has existed since that date. He is now apparently well.

Again, another case, unusual and interesting: Arnold B., a child of eleven years, previous

history negative, was taken with severe pains in the right abdomen. His physician, Dr. Peacock, saw him, and compelled the family to submit him to an early operation. We opened the abdomen and found a gangrenous appendix with free pus in the abdominal cavity. The appendix was removed, the pus wiped out as much as possible, and three very large drainage tubes were left in, one tube extending up to the subphrenic cavity, another was placed in the pelvis, and another drained from the appendiceal site. The little patient did so well for fourteen days that we thought we had won an easy victory. On the fifteenth day he began with pains, severe in character, to the left of the umbilicus, with nausea and vomiting. There was some distention and tenderness at this time. The temperature rose only one and one-half degrees, but the pulse became very rapid. An enema was ordered which gave good results, relieving the symptoms for a while. Nausea and vomiting persisted, pains more severe, with great distention. After every effort to relieve this condition, which had existed for seven days, with a temperature of 102, pulse 180, at 2 A. M. we made a median incision. I removed fifteen distinct bands from around the gut, each of which had as completely closed the lumen of the bowels as you could close it by encircling it with a ligature, and making it tight. These adhesions existed in all parts of the abdominal cavity and were dense. The small intestines were so distended with flatus that it was impossible to return the intestines to the cavity, so we used very long intestinal tracer and threaded every inch of the small gut on to this, which enabled us to readily return the intestines. Again, as unexpected as this case was unusual, the child made a beautiful recovery.

Many are the symptoms we meet—stomach or liver disorders, and refer our patients to gastro-enterologists, when these patients are carrying well-defined and distinct adhesive bands in the abdominal cavity. I have had no extensive experience in the observation of oxygen in the abdominal cavity for adhesions, but I believe that in post-operative adhesions, to fill the abdominal cavity with oxygen and leave it, would be well for our cases.

Dr. F. P. Dickinson, of Spotsylvania County, Virginia, is improving from injuries received in a recent collision of his buggy with another.

EXTRA-UTERINE PREGNANCY.*

By R. C. FRAVEL, M. D., Richmond, Va.

Assistant Surgeon St. Luke's Hospital.

While extra-uterine pregnancy has been the subject of exhaustive study and most of its important features have been thoroughly worked out, I make no apologies for selecting it as the topic for my paper as the disease is such an important one to the physician, surgeon, and patient.

While cases of extra-uterine pregnancy are fairly common in the practice of a surgeon doing a large referred practice, I dare say the average general practitioner can count the cases occurring under his own observation on the fingers of one hand. I have nothing new to offer, but shall be satisfied if by a brief review I can stimulate your interest and hasten an early diagnosis in more cases than are at present being made.

Historical.—We are told that in 1759 John Bard diagnosed and opened the abdomen and removed a mascerated foetus, kept the wound open, and the patient recovered. Wm. Baynham, of Virginia, operated successfully on the wife of a planter in 1791, and again on a slave in 1799 for this condition.

While there were articles preceding, the best of the early writings was the classical work of Dr. John S. Perry, published in 1876. Perry died soon after the completion of his work, and Tait in his book makes many favorable comments of this young man's work and quotes many references. In the early 70's Allen reported three cases treated with the galvanic and faradic current, the object being to destroy life in the foetus and allow its subsequent absorption. Other methods then advocated were to remove the amniotic fluid with a trocar, as also the injection of large doses of morphia deep into the area over which could be heard the foetal heart sounds. The method of Allen was discussed, used, and accepted as the proper procedure until Lawson Tait took up his radical surgical work. His book was published in 1889, and he advised abdominal section as the method of choice. He, however, did not believe diagnosis possible before rupture. Nearly all surgeons of that day agreed with Tait and it was left for Dr. Joseph Price, twenty years ago, to advance the subject by giving the points of diagnosis before rupture. Dr. Hunter Robb in the past

*Read before the Southwest Virginia Medical Society, at Roanoke, Va., June 3-4, 1913.

few years has done much experimental work to prove the idea he advocates of waiting until after the shock of hemorrhage to operate; and, incidentally, his idea as expressed brought forth much discussion and made every surgeon settle for himself, in his own mind, and in his own way, an all important question. Though there are many other men who stand out brilliantly in this connection, these names are most mentioned.

Cause.—Various theories as to cause have been advanced, most of which concern infection, malformation, or pressure on the tubes from without. Infections are usually said to be gonorrheal, though several papers lately have appeared giving tuberculosis as a cause.

The results of infection are various:—First.—It may cause a denudation of the ciliated epithelium and render the lining of the tube similar to that of the uterus after menstruation. Second.—This loss of ciliated epithelium deprives the ovum of the means of gaining entrance to the uterus. Williams, however, better than any one else, has frequently demonstrated ciliated epithelium in tubes previously infected, and this possibly refutes this claim for the harm done by infection. Third.—It may cause the musculature of the tube to be so injured that peristaltic action is lost, in addition to which there may occur the formation of pockets and pouches, constrictions and adhesions, narrowing or altering the lumen of the tube.

Malformations are usually persistence of foetal type, tube long and tortuous, lumen very narrow. Webster explains tubal pregnancy as follows: "In the earlier type of mammalian development, the uterus was bicornate of which the Fallopian tubes in women are mere rudiments. In some women, even now he believes there is structural or functional reversion to the ancient type. According to this theory the stronger the tendency to reversion the greater the liability to tubal pregnancy. This might explain repeated occurrences in the same individual."

Whether congenital malformation, previous infection with gonococci or tubercle bacilli or what changes these infections may cause, the fact remains that any condition which renders the course of the ovum into the uterus difficult or delays its progress, increases the possibility of its being developed in the tube.

Varieties.—Most authors vary in their classi-

fication, which after all is of little importance and not at all accurate. It, however, is always either tubal, ovarian or abdominal, the vast majority beginning in the tube, whatever the ultimate termination. Tubal is subdivided into interstitial, isthmie, and ampullar, according to its position in the tube. Ovarian and abdominal are extremely rare; few cases lately reported leave no doubt as to the occurrence of ovarian. Hirst, in 1908, reports the only undoubted case of primary abdominal that I can find.

Course.—When conception takes place and the impregnated ovum begins to enlarge, the tube dilates gradually, though there is little if any actual hypertrophy of the tube itself; at the same time a false decidua is formed in the uterus. One of several things may happen unless, of course, surgery intervenes,—tubal rupture, tubal abortion, or it may remain in the tube and die before maturity, or go to term. Tubal abortion takes place necessarily before the eighth week while the ostium abdominale is still open and the foetus is discharged into the abdominal cavity; it may rarely pass into the uterus, its course depending on its location in the tube. If it passes into the uterus, it may proceed as a normal pregnancy; if into the abdominal cavity, there will be hemorrhage which may prove fatal. Usually; however, this latter does not occur, but becomes an intra-peritoneal pelvic hematocele, which is absorbed or removed by operation. Rupture of the tube takes place after the eighth week and is a much more serious condition. It is caused by increased tension in the tube, due to increased size, or to traumatism possibly during pelvic examination. This act should be borne in mind in all suspected cases as it has frequently happened. Rupture may take place into the abdominal cavity, into the folds of the broad ligament, or into a space between the tube and ovary formed by adhesions, and may result in the mother's death from hemorrhage or subsequent infection, or may continue to develop if its nutrition is not entirely cut off. When tubal pregnancy is terminated in either of the above ways mentioned, spurious labor usually occurs at the same time and consists of throwing off the false decidua from the uterus. This does not invariably occur at the same time, but if not, does always occur some time during the course of the pregnancy.

Symptomatology.—There are three distinct

periods in the course of extra-uterine pregnancy when the symptoms and physical findings are very different, and it is necessary to keep this fact in mind. There are symptoms before rupture or abortion, after rupture or abortion, and late cases where neither has occurred and in which gestation is progressing or has progressed to term. The symptoms before rupture or abortion are the ones to which I want to call your particular attention, as it is this early diagnosis that is desirable—this, the diagnosis Tait believed impossible, but which was later worked out by Dr. Joseph Price.

Usually in cases of long standing sterility, there are symptoms of normal pregnancy, increased vascularity of the vagina and vulva, morning sickness, enlargement of the uterus, increased tension of the breasts, and the presence of colostrum, a change of temperament, a change of appetite, and possibly increased body weight. Added to these are cessation or irregular menstruation for a month or two, intermittent colicky pains in the lower abdomen, and a palpable mass to one side of the uterus. This mass is rather characteristic in that its walls are thin, it is movable, and there is fluctuation. I do not mean that all these symptoms are invariably present; those of normal pregnancy especially may be absent. The cardinal points I believe are always to be found,—menstrual irregularities, intermittent pain in the lower abdomen and a palpable mass. Harris, in a paper five years ago, states that out of 130 cases seen by him, 90% had consulted a physician on account of their condition; that 20% had been curetted for their bleeding, that all were given medicine, few were diagnosed, yet the symptoms were there. He says it is the doctor's fault that more cases are not diagnosed before rupture. Dr. Guy Hunner, of Baltimore, is credited with the expression that "it is a condition with the diagnosis written all over its face, and is more often missed than any other." At the time of rupture the diagnosis is more easy, the history of symptoms is as just given, the sudden onset of violent abdominal pain, discharge of uterine decidua, the pinched features, the cold clammy skin, the subnormal temperature, the rapid feeble pulse, thirst, restlessness, and air hunger—all symptoms of increasing hemorrhage—present a picture not easily forgotten. Symptoms are of course in proportion to the severity of the loss of blood. Bandler, and

possibly several other men, advocate puncture of the posterior vagina in doubtful cases to confirm the diagnosis.

The findings in late cases are history similar to that of ordinary pregnancy, though the abdominal enlargement usually is first noticed to one side, externally palpated foetus, foetal heart sounds, uterus about the size of two months pregnancy; later, false labor pains about the ninth or tenth month, followed by elevation of temperature and pulse, characteristic or general sepsis due to absorption of decomposing products, and a history of irregular bleeding and pain throughout pregnancy, make the diagnosis rather plain.

Treatment.—The treatment, as accepted at the present day, is always surgical, and, personally, I believe operation should be performed as soon as the patient is seen and a diagnosis made. There is no question as to the procedure if diagnosis is made before rupture or abortion,—removal of the tube with its ovary if necessary, a simple, easy operation almost devoid of danger.

The time of operation after rupture has of late years been a question much discussed. Surgeons are divided. Some advise to wait until after hemorrhage has ceased and the patient has reacted before operating, while others advise immediate operation. Both have points in their favor. Dr. Robb, of Cleveland, believes that patients will not bleed to death from rupture and advises postponing surgical interference so long as the patient is in a state of collapse from loss of blood; he thinks it is bad policy to add the shock of anesthetic and operation to that of hemorrhage. He has experimented on dogs, cutting the ovarian artery and they do not bleed to death. It must be remembered, however, that the dogs with which he experimented did not have tubal pregnancy and the increased vascularity of the pelvic viscera which accompanies it. We also know that many experiments are possible with animals that are not possible with man. A majority of surgeons advise immediate operation; they claim that 5% of all cases of rupture will die from primary hemorrhage, while a secondary hemorrhage may occur at any time, and no one can tell when this will take place. There is a well-known surgical principle, "stop the bleeding vessel if possible in the treatment of hemorrhage from any cause." If we were sure the

source of hemorrhage was from tubal abortion, delay would in most cases be safe, but this we can not tell. Tubal abortion and tubal rupture are both acute abdominal emergencies, require good surgical judgment and rapid operation. "In quickly and out quickly," as Murphy puts it for ruptured appendix, is applicable here. Extreme cases need application of heat, bandaging of extremities, infusion of saline, or transfusion of blood, while operation is being prepared for or is being done. The surgeon must judge what the patient can stand, and decide for himself what is best in each individual case, keeping in mind the principles involved.

The danger of immediate operation is adding shock of anesthetic and operation to that of hemorrhage; the danger of waiting is death from primary hemorrhage, also secondary hemorrhage, paresis and infection.

At operation the abdomen is opened, the bleeding controlled, the affected tube excised, blood clots removed gradually so as not to suddenly change intra-abdominal pressure, and other pelvic pathology dealt with according to the condition of the patient. The question of drainage is more or less important. The tendency at present is against drainage in most cases. Another question to decide at operation is how to deal with the opposite tube, keeping in mind that repeated ectopic pregnancy is not a rare occurrence. During the past year Smith has presented an article reviewing the literature to date, reporting, in all, 174 cases of repeated extra-uterine pregnancies, and Dr. Stuart McGuire, in a paper before the last meeting of the Southern Surgical and Gynecological Association, adds five cases of his own. While neither says positively what to do, their articles plainly show that they favor leaving the opposite tube, in the hope that normal pregnancy will later occur.

Essen-Moller, in *Obstetrique*, 1911, says that in 39 cases followed to date, normal uterine pregnancy has occurred in 46%, two of whom have borne three children. This he thinks confirms the wisdom of leaving the sound tube unmolested.

I am indebted to Dr. McGuire for the use of the records of cases operated upon at St. Luke's Hospital. While there have been in all about fifty cases, I propose using only the last twenty. These have come to operation during the four and one-half years that I have been

connected with the Hospital. These cases I have had the the opportunity of studying and following to the operating room.

In a very small percentage of cases were we able to obtain a history of infection; 60% had never borne children, and in 90% of those who had, there was a considerable period of sterility. Four of these twenty cases were recurrences, so that, while there were 20 cases, there were only 16 different patients. One recurred after only six months, whereas another, after four years. In 65% hemorrhage had taken place. Ninety-five per cent were closed without drainage. There were no deaths. I know several of the patients have since borne children, and am exceedingly sorry I have not been able to ascertain the exact number.

In a paper of this kind, which presents nothing new and is only a brief study of this important subject, no new conclusions can be drawn. There are, however, several points which I wish, in conclusion, to emphasize: That extra-uterine pregnancy is always a surgical condition; that there are definite symptoms before rupture; that the prognosis in early operations, before hemorrhage has taken place, is vastly more favorable than in the later cases when this has occurred; that every physician should use all the means at hand to make, if possible, an early diagnosis.

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ETIOLOGY AND TREATMENT OF ACNÉ.

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It is unfortunately true that a great many medical men treat this common affection with little short of contempt. There can be no real excuse for neglecting it. True, the treatment is tedious, relapsing, and relatively unprofitable to the physician, but the results, considering the relief of such a disfiguring affection and the conservation of human happiness, should appeal to every medical man even if he is occupied in other and apparently more important operations. It is a mistake to think these girls and boys endure their defacement with philosophical resignation. The disposition is often affected to a great extent, some girls becoming wretched, dejected, and sensitive, oftentimes leading lives

of seclusion to the great annoyance of the other members of the family and their friends.

The advice they usually receive that the condition will clear up in time is true, but from that long drawn out process the girl emerges with a pitted and scarred face which she carries through the days when attractiveness and beauty are the attributes she most earnestly desires.

Acne, as we all know, is an eruption of papules, tubercles, and pustules upon the face, back, shoulders, and sometimes the chest, which begins about the time of puberty, and tends to run a chronic course. It is due to infection of the sebaceous glands by the acne bacillus and oftentimes secondarily by the staphylococcus albus.

It is now pretty definitely decided that this bacillus, first demonstrated in Unna's laboratory by Hodara, and afterwards cultivated and grown by Gilchrist, and giving positive findings by the agglutination test as well as animal inoculation, is the same as Sabouraud's micro-bacillus which he reported as far back as 1897; since then various investigators have reported *pro* and *con* with their researches including Fleming, Sudmerson, Hartwell, Western, Engman, Varney and Clark. These are divided into two factions, —one claiming that the bacillus is the sole cause of both the comedo and pustule; the other of the opinion that before a pustule can be produced a coccus infection must be added. My clinical experience leads me to believe that both are correct in certain cases; namely, that the usual pustular acne encountered is due to a combination of acne bacillus and staphylococcus albus. In fact time and again I have been compelled to inject the cocci before any real improvement could be noted. I also believe the acne bacillus to be facultative pyogenic and that under certain conditions it can form pus by its own activities. Western of England was able to obtain from suppurating lesions cultures of the bacillus free from cocci. The cocci recently isolated by Clark and Varney from a peculiar acne of long duration is possibly a different strain of staphylococcus albus, else the condition is a form of acne hitherto not recognized bacteriologically although clinically belonging to that disease. I am of the same opinion as Engman of St. Louis in regard to the treatment of acne by vaccines. The results in my experience have been extremely successful. They are quicker, surer, and more permanent than any

method of treatment yet suggested. They compare favorably with the results obtained in the treatment of furunculosis by vaccines which have been brilliant as I think few will deny at this date.

With a chronic relapsing condition like acne, recurrences after local and internal treatment alone could be expected and probably helped many physicians to get their present day ideas in regard to the disease. The treatment in many hands has been a failure because either the dose was too large and not properly regulated, or else it was given and no attention was paid to the local treatment.

More is required of the physician than the mere injection of the vaccine, even if he is reasonably certain that it contains the proper organisms. If the results are unsatisfactory, he should make every effort to determine the weak link in the chain of desired immunity.

There are three fundamental factors that should govern all would-be immunizers and if these are accurate I believe any local bacterial infection can be cured.

First.—Isolation of the offending organism.

Second.—The preparation and administration of a vaccine from such organisms in suitable doses.

Third.—To be absolutely sure that the highly defensive blood and lymph formed by the vaccine flows freely through the infected area.

For the first two essentials, we must rely on the laboratory worker, and it is needless to say that he must be able and efficient. If there is the slightest doubt in that direction, preparations from the laboratories of some of the reliable manufacturing concerns have given good results in my hands.

The third important factor and one that is dependent entirely on the clinician is the determination of the flow of blood laden with protective substances through the infected region. To me this is the most necessary part of the carrying out of the art of immunization. Even though the patient may have a goodly supply of defensive bodies, they are useless until a flow of lymph is established through the invaded tissue.

It may not be amiss at this point to discourage the promiscuous use of strong antiseptics, especially wiping out the pustules with pure carbolic acid. The worst scarred faces I have seen were the ones that had received this treat-

ment. I have often wondered how far it penetrates into the tissue and how many offending organisms it destroys. We know it does coagulate the lymph in the tissues in a way that prevents very deep penetration and at the same time it sets up an additional barrier against our raised opsonins. Besides this, it must seriously affect the phagocytic action of the leucocytes present.

The pathology of acne consists of a colony of bacilli and staphylococci flourishing in an ideal media, surrounded by capillaries filled with masses of fibrin and inert corpuscles, and surrounding this a more or less intense round cell infiltration giving rise to a firm indurated papule. In the centre of all is a collection of broken down tissue and pus which by its continued growth increases the pressure tending to dam back any immunizing lymph that might surround the infected tissue. What we desire most is to relieve this internal pressure, to lessen the coagulation and the stimulation of free lymph through the lesion. These measures should be carried out in as aseptic manner as possible. Auto-inoculation can be accomplished in acne by the use of vibrators, dirty lotions and salves as readily as it can be done in furunculosis with poultices. We are dealing with a local infection which should be met by the highest surgical technique we can muster, and not by methods taught by our forefathers. The time when we treated acne by looking at the tongue, giving a little rhubarb and soda with lots of advice, is over. People now coming to the specialist with the resulting expense expect and demand more permanent relief than they have been getting in the past, and to attain this every case must be worked over as though it were a minor operation.

The technique I follow may seem useless to many; I admit it requires considerable time, but I am satisfied the patient receives sufficient additional benefit to pay for the trouble. First, all lesions are painted over with a 10% iodine solution in liquid petroleum. I follow this by a brisk curetting so as to remove the tops of all comedoes and pustules and to stimulate the tissues. The surface is then wiped off with a saturated solution of boracic acid and with an aseptic cataract knife I open all pustules on their most dependent parts so as to drain them well. In case any pustules need wiping out I prefer 50% tincture of iodine for reasons above

stated. I now sponge the entire surface with plenty of salt solution which contains citrate of soda $\frac{1}{2}\%$ and sodium chloride 4%. I always keep this solution at hand in flasks that can be readily sterilized. It serves to remove the debris from the mouths of the glands, the citrate of soda prevents too early coagulation of the blood and lymph, while the sodium chloride increases osmosis and promotes an abundant flow of lymph through the wound.

Lastly, I give the entire acne area a thorough application of high frequency electricity. In this agent I think we have a great addition to our armamentarium. Any one who has followed the investigations of Geyser of New York and others cannot help but be impressed with what this form of electricity can do. Not only does it produce congestion and irritation, which we desire, but it lessens the activity of the sebaceous glands and decreases their secretions. In doing this, it no doubt acts like mild applications of X-ray which we know first acts upon the highly sensitive glandular tissue of the skin, lessening its activity and, if increased beyond this point, the glands can be entirely atrophied and destroyed. I do not recommend X-ray exposures in acne as I am of the opinion that with the high frequency current we can obtain most of the good results to be had with X-ray without many of its dangers and disadvantages.

The injection of vaccine differs with most of the dermatologists in this country, although many agree on smaller doses than the men in England give. The giving of very large doses has no doubt ruined the results in many cases. I always begin with small doses, as 3 million of acne bacilli plain, and seldom if ever go above 12 million, injecting it every six days, the dose being regulated by the local reaction. If more than three pustules appear 24 hours after the injection, it is a sign that the dose was too large. The staphylococcus albus I only give if the case is very pustular. This I give in much larger doses, usually beginning with 200 million and often increasing up to 800 million, to be given also every six days. This is also regulated by the local reaction, an outbreak 24 to 48 hours after the injection being a sure sign of too large a dose. I seldom have to give more than four or five injections of the staphylococcus before the pustules clear up, when I discontinue it. The acne vaccine I still con-

tinue until the lesions fail to appear,—as a rule about seven weeks. I always give both vaccines plain, never mixing the two or giving both the same day.

Although well aware of the parasitic nature of acne, other contributing and predisposing causes cannot be denied. Some have claimed that many of the digestive disturbances are the result of absorption of toxins from the infected glands of the skin, or just the opposite, that the acne is due to the elimination through the sebaceous glands of toxins derived from the intestinal infection. True, many of the cocci found in acne can be demonstrated in the feces, but Herter has shown that the growth of these organisms is inhibited by the normal intestinal flora in children and even more so in adults, giving several examples. So that I think few will admit that intestinal infection beyond intestinal fermentation has any direct part in the etiology of acne. We are all many times conscious of improved digestion after vaccine treatment, such as clearing up of the tongue, improved breath, etc., but I am sure this is only part of the general improvement of the patient's condition. The gastro-intestinal disorders found in acne are by no means constant, and probably do not agree exactly in any two cases. These conditions usually come under the heads of constipation, hyperacidity and intestinal fermentation. Internal treatment should be directed against these and other conditions as chlorosis and menstrual conditions.

The diet should be plain but nutritious. Such articles of food as hashes, croquettes, made over dishes and twice cooked meats, pastries, gravies, pickles and alcoholic drinks should be abstained from. All indigestible foods or those producing intestinal fermentation should be avoided. It is this class of foods that cause reflex flushing of the face, thereby lowering the vitality of that area and making an ideal soil for infection. This is often-times seen on old rosacea cases. These cases are often seen long after the age when acne should have disappeared. They develop a rosacea from some intestinal disorder and, as the condition progresses, true acne lesions develop over the infiltrated, hyperaemic area. Many of these cases give no history of previous acne, and go to show that a local lowered resistance in many cases plays a prominent part in etiology of acne. These cases are as a rule greatly benefited by vaccine. The

latter measures all help towards the completion of a successful treatment of acne and should not be neglected if we desire vaccine treatment to bring the best and most permanent results.

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REFLEX VOMITING AND UTERINE DISPLACEMENT—A CLINICAL STUDY.*

By T. MARSHALL WEST, A. M., M. D., Fayetteville, N. C.

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The essayist has not come with any elaborately worked out theory to demonstrate, nor can he hope to do more than contribute his mite to the carefully prepared and interesting program of the day. My offering deals with certain phases of a subject as old as gynaecology itself and may not even escape the condemnation of being trite.

As the basis of this paper I have chosen for discussion a case possessing some features which furnish me with the excuse for bringing it to your notice. I am well aware that some place little credence in the supposed relation of cause and effect existing between disturbances of digestion and malpositions of the non-gravid uterus. So little is known of the physiology and pathology of the nervous system, particularly of the sympathetic, that in dealing with its complications we are of necessity plunged to some extent into the realm of speculation, and care must be exercised that we do not allow our enthusiasm in support of some pet theory to run away with our judgment. In the present instance we shall confine ourselves to faithfully recorded clinical data, and upon these base our conclusions.

On August 7, 1911, a lady, aged 34 years, came to St. Luke's Hospital, Fayetteville, complaining of "weak stomach," from which she had suffered at intervals ever since puberty. Was a healthy normal child until then, but soon after the establishment of the menses she began to reject her food as each period approached, the disturbance lasting about 10 days or two weeks, following which there was an interval free from symptoms; mental or physical fatigue always made matters worse.

She was at school at the time, but was finally compelled to abandon her studies and place

*Read before the Section on Gynecology and Obstetrics of the North Carolina Medical Society, at Morehead City, June, 1913.

herself in the care of a specialist under whose treatment she remained for eight months or more with practically no results. She knew few details of the treatment, but a uterine displacement was evidently recognized as pessaries were frequently adjusted under anaesthesia; a strict dietary regimen and varied medication was of no avail.

She finally abandoned all attempt at treatment. There were occasional periods of relief which, however, did not last long. She married at the age of 26 and has had two children. During her pregnancies she vomited daily for about three months but was comfortable from then on until delivery. After the birth of the second child, she experienced no discomfort for about five months, during which time she gained rapidly in strength, but the vomiting returned at the end of that time. Throughout the six weeks previous to entrance at the hospital she had practically no respite, and very little food being retained, her strength was at a low ebb. A few minutes after eating, no matter how faithfully she dieted, there was uneasiness and slight nausea, and then without retching the stomach was emptied by several efforts at intervals of a few minutes, the vomitus consisting first of food and later of bile-stained fluid. At times small quantities of nourishment were retained but not often. No pain was experienced and there was no history of pyrosis or haematemesis. Appetite fair; rested well at night. Though under weight and weak from her experience, the patient was not emaciated. There were no symptoms suggestive of the neurasthenic.

Physical examination showed a general lack of tone, but heart and lungs were sound; the stomach was dilated and the walls atonic, the lower border being one-finger's breadth below the umbilicus. There was slight tenderness in the upper epigastrium but no other sensitive points in the abdomen: considerable tympanites was present and there were fecal masses to be felt in the colon. The perineum was intact. The cervix, pointing slightly forward, was swollen and eroded from leucorrhoeal discharge. The fundus uteri lay in the posterior cul-de-sac, the entire organ being enlarged and boggy with greatly relaxed supports: adnexa apparently normal.

Temperature normal, pulse about 80. Stomach analysis showed absence of free hydro-

chloric acid and a total acidity of from 15 to 20 points, with no lactic acid and no blood. Urine and blood normal save for high indican content in the former, and slight deficiency in haemoglobin (80%) in the latter. No blood in the stool but large quantities of mucus, numerous motile bacteria and trichomonita intestinalis.

Aside from acute conditions which do not concern us in this instance, we know that vomiting may be due; (1) to organic lesions of the stomach itself; (2) to toxic sources; (3) neurasthenia; (4) reflex disturbances from morbid states in remote organs.

Organic lesions can be thrown out in this case from the history, absence of pain, fullness, haematemesis, and the gastric findings as a whole. The urine being normal and the blood picture and the temperature curve likewise so, a toxic origin is disproved. The patient shows no evidence of that morbid pleasure in the recital of her trouble, that ready response to suggestion met with in the neurasthenic. On the contrary, she takes a hopeful view of her case and is not discouraged at the prospect though the trouble be of such long standing.

The vomiting in this instance is marked by two distinct characteristics—chronicity and periodicity. When one symptom persists for a long time and is uninfluenced by local treatment and no lesion can be demonstrated, we can be pretty certain that we are dealing with a neurosis. The stomach is at the center of a great nervous plexus, with branches extending widely, connecting it by the sympathetic system to remote organs. It may be profoundly influenced by morbid conditions in these localities, particularly if the nervous balance be more finely adjusted than usual. Headache, mental shock, pain, all bring on reflex irritability of the stomach. Ewald is authority for the statement that normal menstruation causes retardation of gastric digestion, and that chronic gastric disturbances may follow disorders of the female sexual organs.

The periodicity of the symptoms naturally focus our attention upon the pelvis in this case. Here we have an engorged misplaced organ rendered more irritable and sensitive from its increased blood supply. It is a matter of familiar experience that the displaced uterus is more sensitive than the normal, due to the associated low grade inflammation and consequent pressure

on nerve endings. Hewitt says: "My own experience is that the reflex symptoms now under discussion are almost invariably associated with and I believe dependent upon abnormal conditions of the uterus, consisting of undue softness, congestion, and alteration in shape, all more or less associated." He further remarks that a general feebleness is in many instances the basis as well as the accompaniment of more strictly local pathological changes. Our case admirably meets these conditions. The long continued vomiting has sapped the patient's vitality, bringing about a nervous unbalance and susceptibility, the vomiting increasing the irritability, and it in turn responding to weaker stimuli.

For over two weeks the patient was treated faithfully by diet, sedatives, colonic flushings and a general tonic regimen, with little or no success.

The patient came to operation on August 22nd. Except for slight pericecal inflammation and a general lack of gastro-intestinal tone the abdominal contents were normal. The uterus was soft, enlarged and boggy, the fundus lying in the position revealed at the time of physical examination; the supports were very much relaxed: the adnexa were normal and there were no adhesions in the pelvis. The uterus was curetted and restored to the normal position by the Webster-Baldy method. The appendix, though normal, was removed. The patient did not vomit after the post-operative discomfort subsided which was in 48 hours. Convalescence was uneventful and she began taking nourishment regularly and without discomfort except for some flatulence which was corrected by appropriate means. Menstruation returned on September 2nd, and was unaccompanied by unpleasant symptoms. When last seen six weeks ago she had enjoyed excellent health though for a short interval she had a temporary return of the vomiting following a period of costiveness and overwork, two things against which she had been especially warned. Treatment was promptly effectual.

Search of the literature at our command yields little bearing in detail upon the subject. Gailey Hewitt is the most ardent advocate of the theory and in clinical lectures (*Br. Med. Jour.*, June and July, 1888) reports 19 cases associated with a marked degree of flexion chiefly of the anterior type in which some of the patients

were in a critical condition. The pessary was employed with gratifying results in all. In his series the vomiting lasted from a few weeks to two years.

Ewald mentions a case of distressing pyalorrhoea and vomiting having for its basis a retroverted uterus, the correction of which was followed by immediate relief.

Kirsh recognizes the type of chronic vomiting associated with pelvic anomalies, chiefly retroflexions, which he terms "dyspepsia uterina."

Hewitt's views are best stated in his own words: "Again to take the case of the non-gravid flexed uterus: What is the nature of the irritation which sets up the vomiting? Is it not the compression of the nerves imbedded in the uterine tissues at the seat of the flexion? It seems to me that it must be so. It is likely that I may be here met with the statement that this sickness is due to the associated inflammation and that the flexion has nothing or little to do with it. But the associated inflammation, granting it to be present, is really another of the effects of the flexion for the same circumstances which give rise to the pressure on the nerves at the bend of the uterus give occasion to an obstruction of the circulation in the organ ***** And this obstruction is the essence of the physical conditions described as inflammation of the os: Certainly it is generally the first and primary cause of such inflammations."

He further claims that there is sclerosis of the tissues in the neighborhood of the bend, especially at the internal os, and that this sclerosis interferes with the normal elasticity and expansive power of the organ. In some cases the sclerosis is so marked that a considerable effort must be exerted to straighten the canal and then the flexion promptly returns when the instrument is withdrawn.

We believe a valuable hint may be taken from these facts relative to certain instances of hyperemesis gravidarum. If in the non-gravid state displacements excite such obstinate and serious reflex disturbances, how much more susceptible might the patient not become when pregnancy supervenes? No one etiological factor is at the bottom of every case of pernicious vomiting, but there is a well recognized reflex type associated with pelvic anomalies, as is admitted by Williams, Hunter, Frank and Hewitt. The diagnosis can be made by exclusion, and

appropriate measures may be adopted without resort to the interruption of the pregnancy as is sometimes deemed necessary in the interest of the mother.

In any case of stubborn vomiting not amenable to the usual treatment, it would seem well to examine the pelvic organs for possible sources of reflex irritation, and act in accordance with the findings before resorting to the induction of premature labor. The reported case illustrates the fact that a relatively simple pathologic state of the female reproductive organs may give rise to a distressing and persistent symptom through the medium of the sympathetic nervous system.

EMPHASIS OF IMPORTANT FACTS RELATING TO THE DIAGNOSIS AND TREATMENT OF SYPHILIS.

By THOS. B. LEONARD, M. D., Richmond, Va.

When we consider the appalling morbidity and mortality from syphilis, we are lead into a labyrinth of horrible suffering in which sin and sorrow and poverty are shown in their most cruel and ghastly forms, and before which the ravages of such dreadful diseases as tuberculosis and cancer pale into insignificance.

Indeed, in a number of cases, both tuberculosis and cancer have this venereal curse as their predisposing cause, and probably no other constitutional taint is so inviting to these loathsome ailments as this disease. Especially, before the discovery of the arsenical remedies for combating lues, it was not at all uncommon to see tuberculosis engrafted upon an active syphilitic condition and carcinoma developing upon the site of a chancre.

Who has not seen osteo-periostitis, specific rheumatism, nephritis, atrophic cirrhosis of the liver, cardiac involvement, arteriosclerosis, pernicious anemia? and gummatous involvement in any and every tissue of the human body,—all the direct result of syphilis?

More astonished are we when we turn to a text-book on nervous diseases and find that 75% of that interminable maze of hopeless afflictions have a specific origin. From the mildest cranial or spinal neuritis to the most violent and incurable mania we trace the etiologic factor, in a number of cases, to a luetic infection; and the writhing agony of a tabetic crisis and the sickening horror of a parietic carphologia we have learned to interpret as a summons for the

prompt administration of anti-specific remedies. Aye, worse! the innocent snuffle of the new born babe, the absent nasal bridge, the perforated palate, or the large serrated, central teeth of Hutchinson, have but one interpretation—immorality of the parent, and its consequence, syphilis.

We have come to see these things so often that their meaning is as plain to us as if each sufferer were proclaiming his taint through a megaphone.

Can you imagine any condition more deplorable? But this is not all. Thirty per cent of deafness from disease of the auditory nerve is due to syphilis. Almost invariably, pemphigus bullae are caused by this disease. A large per cent of total blindness is due to it, and syphilitic iritis, choroiditis, keratitis and cyclitis furnish one-half of the entire practice of the ophthalmologist.

The unbearable condition of atrophic rhinitis is the result of infection by the pale spirillum, and at least 50% of deformities are the result of hereditary syphilis.

With such a tremendous power for evil, this hydra-headed demon pursues its course of ruthless destruction, relentless in its demand for the health and happiness and often the life of the victim.

Still, with all this lamentable truth in regard to syphilis, scientific men encounter this disease with a loathsome negligence or blind ignorance, and wonder why such an one of so respectable a family should be a physical Quasimodo or a moral Fagan.

What are we going to do about it?

In the first place, we must remove the cloak of false modesty that has so long hampered the free discussion of this affection. We must direct the searching light of publicity upon the prevalence and dangers of this disease. We must institute campaigns for the furtherance of legislation that will in some degree reduce the frequency of it.

Then we should invoke the help of our public health officers to organize reforms for its eradication, just as they have done so effectually in other infectious diseases of lesser importance.

Now these suggestions are easily enough made, but how are we to put them into actual operation? This is a very different matter and I am frank to admit that the task is one of

gigantic proportions and beset with almost insurmountable obstacles.

When I say remove the cloak of false modesty, I mean that we must not allow the public to remain in ignorance as to the direful effects of this disease because of the idea that it is not proper to discuss venereal questions in the public press. I mean, instead of refusing to publish information in regard to it, the press should welcome all knowledge relating to this curse and give the subject as conspicuous a position as is accorded the method of preventing tuberculosis, for example. Fathers should instruct their sons as to the dangers of infection and warn them as to the necessity of prevention. Again, the "red light district" should be legislated out of existence. That such a place should be allowed to exist in open defiance of the law of the land is inexcusable.

Of course, it will be a difficult matter to close these houses, but if men of wealth and philanthropic inclination will supply the funds, they will serve a purpose that will immortalize them in the memory of man.

Some will say that this sounds very nice but will doubt the practicability of the idea. I say to them that it can be done,—that it has been done in the very section of this country in which we live. All that is necessary is sufficient financial backing and enough courage to oppose the powers that be. It will take time, of course, to do this. All great movements for the betterment of mankind take time and brains and devotion to a cause. It is ridiculous to say that these disreputable places cannot be closed. I think that a certain gentleman at Washington has demonstrated in a very practical manner that a great many things that were formally thought impossible can be done. We need men of his sincerity and courage and tact,—I will not say brain because there are so few that can compare with him in this respect. Moreover, we must set out upon a campaign of education similar to the temperance movement. Indeed, the temperance movement and that of abolition of public vice are so intimately associated that both reforms might combine, each as an auxiliary to the other. Pamphlets, circulars and other literature should be disseminated broadcast and every means adopted to instil knowledge and consequent fear as to the danger of exposure and infection.

In this manner the public conscience will be

so aroused as to demand legislation of the most drastic kind for the suppression of vice. People are not growing worse with greater intelligence. I have full confidence in the ability of the masses to arrive at the right, eventually. I believe that the numbers in support of such a movement would be so overwhelming that the opposition in the face of so pronounced an awakening would be negligible. Certainly, it would not be potent for long, and in due time I believe the man that would openly oppose such a movement would be so branded as to mark his progeny for generations to come.

It is a matter of common opinion that no department in our municipal or State governments is more valuable to us than our public health boards. Every one of any intelligence knows the remarkable results obtained by our own State and city boards of health.

By the inauguration of crusades against the infectious diseases, these men have so effectually gained control of the situation that many scourges, such as small-pox, typhoid, malaria, diphtheria and scarlet fever have been in a large measure wiped out. Occasional outbreaks of disease such as our recent typhoid scare are liable to occur, but, under their rigid scientific methods, an epidemic in the old sense is practically impossible. So, as they have done so much in conserving the public health in these diseases, likewise, they can do much in the prevention of syphilis. And, just as the conservation of the public health and the reduction of mortality in these diseases is an economic advantage, so will it be in syphilis.

Now, with the combined forces of the public press, the civil expunging organizations, and the boards of health, much can be done towards the eradication of this important distemper. Besides these public means of prevention, the doctor can do much more in the future than he has done in the past. It is with reluctance that I mention the laxity of methods (sometimes amounting to criminal negligence) displayed by many reputable men in the diagnosis of this ailment. It is not infrequent to discover an urethral chancre which has been treated for a month or more as a simple prethrititis, or, what is more common to see, a typical chancre cauterized time and again. Indeed, labial chancres are rarely recognized, and secondary or tertiary syphilides are dismissed with some soothing unction! 'Twere better that this latter remedy

were reserved to soothe our own conscience, in many instances.

I do not believe that the man lives who can differentiate all chancres from chancroid, herpes, balanitis, or other affections of the genitalia without the aid of the microscope. I believe it is absolutely necessary to submit a specimen from the ulcer before one can be positive of his diagnosis. Even then, I would not rely upon one negative report if the ulcer looked the least bit suspicious. I would insist that the Wassermann or the Weil-Cobra reaction be utilized in all doubtful cases, usually one of them, sometimes both. It is impossible to be too careful in making a diagnosis in this condition. The Weil-Cobra is especially useful in old cases or in cases that have had more or less of anti-syphilitic treatment. The Wassermann is more sensitive in ordinary cases that have not been treated. It is all-important that we find out definitely and as soon as possible whether or not the patient has lues, and to do this will tax the skill of the best physician.

The old method of going the routine of gland palpation and taking a long shot with some inert dusting powder is not tolerated now, and it is equally wrong to presume that every case is specific. It is no small matter to subject a man to the pain and expense of an intravenous or numerous subcutaneous injections, but if we are satisfied that he is infected, it becomes our duty. The treatment is by far the simplest part of the discussion.

It is impossible, in the light of innumerable reports from authentic sources, that there should be any prejudice in regard to the efficacy of "606." With ordinary care in eliminating advanced forms of syphilis of the nervous and circulatory systems, and in pronounced alcoholics, there should be no untoward results from the proper administration of the remedy. I have observed alarming symptoms following the intravenous injection of salvarsan in comparatively few cases. One case, in which the effect of the drug was so severe that I feared death, occurred in a man who had been addicted to the excessive use of alcohol for years. In another case showing marked reaction, an idiosyncrasy for arsenic was found to be present. I learned that the young woman had suffered previously from edema upon ingestion of arsenic in small doses. It was no wonder, then, that upon the injection of "606," she developed a

general edema extending even to the larynx, so that prompt intubation was necessary to prevent suffocation. I do not recall severe symptoms in any other case, since the technique of administering the drug has been perfected.

In the few cases of death that have been reported, we may ascribe the cause to the fortuitous association of a number of elements. Usually arsenical poisoning is the direct cause, influenced by the sudden liberation of endotoxins in patients suffering with syphilitic changes in the aorta or heart. These cases are extremely rare and can be eliminated by the experienced doctor without trouble. I mention the untoward effect of the remedy as a warning against the reckless and indiscriminate use of the drug, but in actual practice the number of cases causing severe discomfort from "606" is so small that the drug could not be considered dangerous.

In conclusion, I would reiterate the alarming prevalence of the disease and the urgent need for striking at its source, "the red light districts." Further, I would urge the necessity of compelling all patients suffering from it to submit to treatment with "606," unless, as is rarely the case, the drug is plainly contraindicated.

I approve most heartily the movement requiring certificate of freedom from venereal disease from men contemplating matrimony. I would go further, however, and demand that such certificate should indicate that the applicant had not only undergone a physical examination but that he had submitted himself to a recognized microscopist for an examination of his urethral secretion as well as his blood. A certificate without this latter requirement would be worthless.

Lastly, I desire to impress the fact that syphilis is curable, and that with the advanced methods of diagnosis and treatment at the command of the physician, no disease offers a more favorable prognosis; neglected, no curse was ever visited upon mankind with a greater power for harm. The extent of its ravages knows no bounds, and there is no shorter route to the asylum, almshouse, or prison, than the one cut by an untreated case of syphilis. Perhaps, not in the first person but just as certainly as every man has to meet death, so does the untreated possessor of this dreaded disease bring unspeakable punishment upon his innocent progeny. With this, I invoke the assistance of

the profession in stimulating a more general discussion and thorough understanding of this subject, than which no field in medicine or surgery is more replete with opportunity to serve humanity.

200 West Grace Street.

Analyses, Selections, Etc.

The Stomach in Hunger.

The hundredth anniversary of the entry of one of America's pioneer medical investigators, Dr. William Beaumont, into the practice of medicine was fittingly commemorated last year. The devoted efforts of this undaunted man of science—a backwoods physiologist, as Osler has suggestively designated him—have furnished the inspiration to a number of successors to repeat the observations which Beaumont made on his famous subject, Alexis St. Martin, the man with the “lid on his stomach.”

Recently Professor Carlson of the University of Chicago has made a number of observations on a young man in normal health who for the last sixteen years has fed himself through a permanent opening in the stomach wall owing to complete closure of the esophagus as the result of accidentally drinking a strong solution of caustic soda. He has furnished some interesting and conclusive contributions to the physiology of hunger.

There have been diverse theories of hunger from earlier days to the present era. Until quite recently it has been widely believed that hunger is a general bodily sensation with a local reference to the stomach.

Some authorities have vigorously combated this view, and maintain that hunger is not a general sensation. Experiments have led to the conclusion that hunger results from powerful contractions of the stomach. With this general view the observations which Carlson has now been able to make on his new subject are in accord. He finds that the empty stomach exhibits, at least during the first twenty-four hours after a meal, two types of rhythmic movements; one is feeble but continuous; the other consists of strong contractions. In the earlier periods of hunger at any rate, the empty stomach is never completely at rest. Hunger, or the lack of it, is a condition which at times commands

the considerate attention of the physician. The absence of hunger in fevers can now be accounted for by the total cessation of all movements of the stomach in serious infections. This also explains the inordinate appetites of certain classes of nervous patients. Physiologic observations on an occasional unfortunate individual serve a useful purpose by directing attention to numerous little-understood and hitherto unexplained manifestations of disease.—(*Journal American Med. Assoc.*, February 8, 1913.)

Book Announcements and Reviews

The Semi-Monthly will be glad to receive new publications for acknowledgment in these columns, though it recognizes no obligation to review them all. As space permits, we will aim to review those publications which would seem to require more than passing notice.

Blood-Pressure. From the Clinical Standpoint. By FRANCIS ASHLEY FAUGHT, M. D., of the Medical-Chirurgical College, Philadelphia. Cloth. 8vo., 281 pages. Illustrated. Philadelphia and London: W. B. Saunders Company, 1913. Price \$3.00 net.

During the past few years there has been a rapid growth in the use of the sphygmomanometer for clinical purposes. In consequence of this, there has developed a demand for an authoritative work on the subject which would at the same time give in concise form leading facts concerning our knowledge of blood pressure, its significance, etc. We believe the present volume by Faught meets such needs admirably, and will prove highly satisfactory to those in search of a work of this character. We might note, however, that the author has not always been as careful in the construction of his sentences as the medical value of the book deserves.

Care of the Skin and the Hair. By WILLIAM ALLEN PUSEY, A. M., M. D., Professor of Dermatology, University of Illinois. 12mo. 182 pages, 3 illustrations. New York and London: D. Appleton and Co., 1912. Cloth.

This book aims chiefly to discuss the hygiene of the skin, although it deals in a general way with the commoner diseases affecting it. We might especially refer to the chapter on Acne and Blackheads and a Bad Complexion as containing some good sound advice, and as being worthy of attention by the average practitioner,

who treats the condition with much greater indifference than he should.

Solidified Carbon. By RALPH BERNSTEIN, M. D., Clinical Instructor in Skin Diseases, Hahnemann Medical College, Philadelphia; Dermatologist to West Philadelphia General Homœopathic Hospital and Dispensary, etc. 12mo. 95 pages. Illustrated. Frank S. Betz Co., Hammond, Ind. 1912. Cloth.

This little book tells of solidified carbon-dioxide in the successful treatment of cutaneous neoplasms and other skin diseases, with special reference to angioma, epithelioma and lupus erythematosus. The author gives the origin of the agent as a therapeutic measure, discusses general considerations relative to its use, tells of its action on the skin, its superiority over other methods like x-ray, etc., how it may be solidified, and goes into detail as to its application in various skin affections. We see nothing especially homœopathic in the method of treatment adopted by the author, but regardless of this we have been impressed with results as shown in the illustrations, and believe this subject worthy of further investigation.

Manual of the Diseases of the Eye—For Students and General Practitioners. By CHARLES H. MAY, M. D., Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York, 1890-1903; etc. Seventh edition, revised. New York: William Wood and Co. 1911. Cloth. 12mo. Pages VI—407. Price, \$2.00 net.

New and Non-Official Remedies, 1912—Containing Descriptions of the Articles Which Have Been Accepted by the Council on Pharmacy and Chemistry of the American Medical Association Prior to January 1, 1912. Chicago: American Medical Association, 535 Dearborn Avenue. 1912. 12mo. Pages 298. Price, cloth, 50 cents; paper, 25 cents.

Twenty-Eighth Annual Report of the Bureau of American Ethnology to the Secretary of the Smithsonian Institution—1906-1907. Washington: Government Printing Office. 1912. Cloth. Large, 8vo. Pages 308-XXXV. Profusely illustrated.

Surgical Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. Volume II, Number 1. February, 1913. 8vo., 179 pages. Illustrated. Philadelphia and London: W. B. Saunders Company, 1913. Published Bi-Monthly. Price per year: Paper, \$8.00; cloth, \$12.00.

Manual of Medicine for Nurses. By GEORGE H. HOXIE, M. D., Physician to the German Hospital, Kansas City, Mo., and PEARL L. LAPTAD, formerly

Principal of the Training School for Nurses of the University of Kansas. Second edition, rewritten and enlarged. 12mo., 351 pages. Illustrated. Philadelphia and London: W. B. Saunders Company, 1913. Cloth, \$1.50 net.

Editorial.

Non Nunquam Paratus—Always Prepared.

This was the motto of one of the families of the feudal days; it carried a great significance, and it will apply to medicine, especially, when dealing with questions of hygiene and the prevention of infectious and contagious diseases.

Diphtheria is cured by the employment of an antitoxin; contacts are immunized by the same means. Typhoid fever is prevented by vaccination with the typhoid bacilli, even though the surroundings are not strictly hygienic,—the water and milk supplies may not be free from contamination, and carriers of infection like flies may be present without number. Whooping cough yields to the pertussis vaccination today, as it did more than a hundred years ago to the vaccination performed with animal virus by Dr. John Archer, of Maryland, performed when such cases occurred in those afflicted or exposed to small-pox. Many cases of cancer have yielded to the introduction into the system of the toxin of erysipelas. Small-pox is controlled by vaccination, and in some communities entirely eradicated by timely and repeated vaccination.

While all of this is true, since experience proves it, great difficulty is frequently encountered against the application of such prophylactic measures, and the law, except as it refers to small-pox, does not afford any aid. Quarantine does not effect the result in all diseases for which it is established, in those instances where contacts refuse to become immunized. Here quarantine works a hardship upon those protected, particularly hard upon the head of the household where a placard is posted. A quarantine once established should be most rigid; it should make the rooms occupied by the sick places of absolute isolation, and should a patient suffering from a reportable disease be found in any part of the house or in any room not assigned him, that patient should be considered at large, a menace to the community, subject to arrest, and immediately transferred

to a municipal hospital for the treatment of the disease from which he is suffering. The family must be excluded from the isolated part of the house; the nurse and the attending physician must comply with the published regulations of the Health authorities; they must be careful to so cover the outside clothing that they themselves will not become carriers of the disease they are combating. Dogs, cats, and other pet animals should be excluded from the sick room, since disease germs will cling to fur and feathers.

The hardships of such a quarantine will soon result in the removal of patients to hospitals for contagious diseases and in the end contacts will permit immunization; disinfection and fumigation will purify the premises; the placard is then removed and a number of individuals is added to the protected list.

The results which have attended the use of the typhoid bacilli as a prophylactic against typhoid fever are marvelous, and, in the absence of reliable evidence, scarcely believable, but so great has been the preventive power of these inoculations, it is rapidly becoming adopted in private practice; as a result, cases of typhoid fever will be a rarity.

No reason exists to refer to the prophylactic power of vaccination against small-pox; every medical man of any intelligence or observation will admit this power.

The protective powers of immunizing agents being so well known, and at the disposal of the medical profession, it becomes a difficult problem to solve the frequent and, at times, the persistent presence of controllable diseases

L. E.

Milk Should Be Pasteurized at Low Temperatures.

In order to determine the best way of pasteurizing milk so as to kill the disease germs and yet not give the milk a cooked flavor or lessen its nutritive value, the Department of Agriculture, through its Dairy Division, has been conducting a series of experiments, treating milk at different temperatures and for different lengths of time. According to the report on these experiments in Bulletin 166 of the Bureau of Animal Industry, when milk is pasteurized at 145° F. for thirty minutes the chemical changes are so slight that it is unlikely that the protein (muscle building element) or the phosphates of lime and magnesia

are rendered less digestible than they are in raw milk.

Moreover, from a bacteriological standpoint, pasteurizing at low temperatures is found to be more satisfactory than pasteurizing at high temperatures. According to Bulletins 126 and 161, where low temperatures are used the majority of bacteria that survive are lactic acid organisms which play an important part in the normal souring of milk. When milk is efficiently pasteurized at high temperatures, the bacteria which survive are largely of the putrefactive kinds, and milk so treated, if kept for any length of time, has a tendency to rot instead of sour. From the standpoint of economy, the technologist of the Dairy Division finds that pasteurizing at low temperatures calls for less heat. It is found that it takes about 23½ per cent less heat to raise milk to the temperature of 145° F. than to a temperature of 165° F. A similar gain is a saving of the ice needed, because it will require 23½ per cent more refrigeration to cool milk to the shipping point when it is pasteurized at the higher temperature. The Department, therefore, recommends that when market milk is pasteurized it should be heated to about 145° Fahr. and held at that temperature for 30 minutes.

The American Proctologic Society,

At its annual meeting in Minneapolis, in June, elected the following officers for the ensuing year:—President, Dr. Jos. M. Mathews, Louisville, Ky.; vice-president, Dr. Jas. A. Mac-Millan, Detroit, Mich.; and secretary-treasurer, Dr. Alfred J. Zobel, San Francisco. Members of executive council are Drs. Hirschman, Detroit; Pennington, Chicago; Beach, Pittsburg; and Zobel, San Francisco. Abstracts of a number of the principal papers read at this meeting will appear in later issues.

International Congress on School Hygiene.

We again call attention to this meeting in Buffalo, N. Y., August 25-30, because before our next issue is out, all who expect to attend will have made their plans accordingly. The subjects to be discussed are ones of great interest, and further information may be obtained of C. S. Thompson, College of City of New York, New York City.

Married Versus Single Men in Relation to Crime and Suicide.

From statistics recently compiled in the Dis-

trict Attorney's office, New York, it is demonstrated that more crimes are committed by single than by married men in the ratio of more than 2 to 1, while there are three times as many suicides among the married as among the single men. The question is thus forced upon us, is it better to remain single or become benedicts?

The New York Skin and Cancer Hospital

Was the recipient of 5,000 books and a large number of monographs from Dr. B. Merrill Ricketts, of Cincinnati, its first house surgeon.

Medical Course of Five Years.

The State Board of Medical Examiners of Pennsylvania has announced that, after 1914, a fifth or hospital year will be added to the medical course of the schools in that State, as a requirement for the practice of medicine within its confines.

Dr. Mark W. Peyser,

Richmond, Va., editor of the *Department of Analyses, Selections, etc.*, of this journal, is spending the month of August at Rawley Springs, Va.

Vacations of Some Virginia Doctors.

Dr. Stuart McGuire, of this city, left for London, the last of July, where he went as one of the delegates from the United States to the International Congress of Medicine in London.

Dr. Leigh Buckner, Roanoke, Va., also went by the same steamer to attend this meeting.

Dr. H. Stuart MacLean, Richmond, is spending his vacation at Lake George, N. Y., and at other Northern points.

Dr. Armistead Wellford, Richmond, is spending the month of August at Nimrod Hall, Va.

Drs. R. C. Bryan, W. Lowndes Peple, and Thomas W. Murrell have all recently returned from their vacations spent at various points of interest.

Dr. A. G. Crockett,

Of Max Meadows, Va., was seriously, though it is hoped not dangerously, injured, July 29, while returning from seeing a patient. The horse had been improperly hitched, and it is thought that the buggy running down on the horse, frightened him, causing him to run away.

Changes in Virginia of U. S. Army Officers.

Maj. Thos. L. Rhoads is relieved from duty at Walter Reed General Hospital, D. C., July

25, and will proceed to Winchester, Va., and report in person to commanding officer, Provisional Calvary Brigade, for duty, and upon completion thereof will proceed to Philadelphia, Pa., for duty as attending surgeon in that city.

Lieut. Clemens W. McMillan ordered on arrival in United States from Alaska, to proceed to Ft. Myer, Va., for duty.

Maj. Theodore C. Lyster, upon arrival in the United States in compliance with orders heretofore issued, will proceed to Fort Monroe, Va., and report in person to the commanding officer of that post for duty and by letter to the commanding general, Eastern Department.

The Association of Military Surgeons of the U. S.

Will hold their twenty-second annual meeting in Denver, Colorado, September 16-19, and it is expected that there will be a large attendance as Denver is an ideal place from which to make side trips for sight-seeing. Surg. W. C. Braisted, U. S. Navy, and Col. Saml. C. Stanton, Chicago, are president and secretary, respectively.

Training School for Nurses in the Philippines.

There were 18 male and 40 female candidates this year among the graduates of the Philippine Training School for Nurses, this being the third class to complete the entire course since the opening of the school. The former graduates have already proved of great assistance to the Government in conducting its hospitals, and, as visiting nurses, in combating outbreaks of communicable diseases.

Dr. Henry Wireman Cook,

Of Minneapolis, one of the resident physicians at Memorial Hospital, this city, 1902-3, and for a short time thereafter a resident of Richmond, was elected president of the American Association of Medical Examiners, at the Minneapolis meeting in June.

U. S. Public Health Officers in Virginia.

Surgeon C. P. Wertenbaker directed to proceed to Cape Charles, Va., not later than the morning of July 24, 1913, for the purpose of making the annual physical examination of keepers and surfmen of the Life Saving Service, and Surgeon B. S. Warren directed to proceed to Ocean City, Md., about July 21, thence to Chincoteague and Wachapreague, Va., for the same purpose.

Dr. Dwight H. Murray,

Of Syracuse, N. Y., a prominent member of the American Proctologic Society, has been appointed Associate Professor of Clinical Proctology in the University of Syracuse.

Cleveland to Have Physicians' Building.

A twelve story building for the exclusive use of physicians is shortly to be erected on Euclid Avenue, Cleveland, Ohio.

The General State Hospital Board

Will meet in Lynchburg, Va., August 12, for its annual inspection of the State Epileptic Colony situated near that city.

Money Asked of the United States for War on Opium.

Early in July, Secretary of State Bryan appeared before the Appropriations Committee of the House to push his recent request for \$20,000 to pay the portion of the United States in the international effort to do away with the abuses of opium. The United States and twelve other nations joined in this work originally and have already had two meetings previous to the last one at The Hague. It is reported that at the last meeting a number of other governments joined in.

U. S. Navy Changes of Interest in Virginia.

Surgeon G. L. Angeny detached from Navy Recruiting Station, Richmond, Va., July 9, and ordered to Navy Yard, Norfolk, Va.

Medical Inspector R. P. Crandall detached from Norfolk Receiving Ship, July 23, and ordered to command Naval Hospital, Canacao, P. I.

Petersburg, Va., Healthy.

The annual report of Dr. R. A. Martin, health officer of Petersburg, for year ending in June, shows that the death rate was the lowest in seven years. There were 559 deaths, the ratio among the colored population being about double that among the white, and there was a marked decrease in cases and deaths from typhoid fever as compared with previous years. There were 615 births reported to the Health Department.

Friedmann Tuberculosis Cure Again.

According to reports from Berlin, Professor Ehrlich, the famous German bacteriologist, has consented to undertake an investigation of the Friedmann tuberculosis cure.

Central State Hospital to Have New Building.

Contract has been awarded for the construction of a new building at Central State Hospital, Petersburg, Va. It will be capable of accommodating eighty patients, and is intended for the use of patients suffering from acute troubles. Several minor improvements will also be made.

Eugenic Law for Wisconsin.

The Wisconsin Legislature has passed a bill requiring examinations by physicians and the presentation of health certificates from both parties prior to the granting of a marriage license. A bill was also passed for the sterilization of the feeble-minded, epileptic and criminal insane in State and County institutions.

Vacancy.—Assistant Physician wanted to fill a vacancy on the Medical Staff of the Central State Hospital, Petersburg, Virginia. Dr. W. F. Drewry, the superintendent, will be pleased to give anyone interested full particulars in reference to the requirements and duties of the position. The salary is \$900 per year, board, etc. (Adv.)

Wanted.—A young, well-equipped single physician to take charge of a good country practice for several months or a year. Liberal terms to the right man. *Apply to Dr. Jos. L. McSparran, Hurley, Va.* (Adv.)

Wanted.—Assistant in mining practice; location in Virginia. Must be young, energetic and healthy. Salary, \$1000 per year, which with extras, will amount to more than \$100 per month; medicines furnished. State age, college and year of graduation, also when ready to begin work. Prompt action necessary. Address, "B. N. W.," care *Virginia Medical Semi-Monthly*, Richmond, Va.—(Adv.)

Obituary Record.

Dr. John W. McPherson,

A prominent specialist in the treatment of eye, ear, nose and throat diseases, at Haw River, N. C., while in a state of mental depression, committed suicide at the home of his father near there, on the morning of July 28. He graduated from the Baltimore Medical College in 1898, since which time he had practiced in Alamance County, North Carolina.

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IS THE PRESENT IMMOLATION OF THE TONSIL JUSTIFIABLE?*

By J. A. WHITE, M. D., Richmond, Va.

Ex-President Tri-State Medical Association of Virginia
and the Carolinas.

If we look into the history of medicine we will find that curious medical fads, or surgical crazes have manifested themselves among the followers of Esculapius from time to time, just as strange religious creeds, or political beliefs, or extraordinary fashions have arisen among different peoples, only to be discarded after awhile for some new fad or fancy.

Time does not permit us to go into an exposition of these various aberrations of the medical profession, but I might call your attention to the wholesale unsexing of women by removing the ovaries upon the slightest pretext, followed by the more recent slaughter of the appendix; and now we have, as John N. MacKenzie calls it, "the massacre of the tonsil." I don't think there is any doubt but that the operation of appendectomy is carried to an extreme, as some surgeons view the appendix as a useless and dangerous attachment to the intestine, that should be removed on the faintest provocation. The lust for conquest of the soldier is nothing compared with the lust for operating of the latter-day surgeon.

And now the tonsil! What a field is there! Everybody has two—twice the number of appendices,—unless he consults a throat specialist of the radical type, when he will probably have none.

The tonsil craze is now at its height,—like the surgical craze for removing the appendix,

it has spread among the profession and the public as an epidemic.

I may call it "the immolation of the tonsil on the altar of fashion."

To be in fashion one must have no tonsil, or if, perchance, he has one, it must come out.

The public has learned that it is a useless appendage, placed in the throat by the Creator's oversight, and having no known function to perform, and, moreover, being a constant menace to the general organism in the production and propagation of many ills, it must, like the appendix, be removed.

The radical throat specialist has builded well; the crusade he has preached against the tonsil has aroused the multitude like Peter the Hermit's crusade against the infidel. Starting with the perfectly sane proposition, that diseased tonsils should be removed, just as any other diseased structure of the body that can be removed, it has developed into a frenzy, an obsession to remove all kinds of tonsils, and, if not in evidence, they search for the so-called submerged tonsil.

In February, 1910, at the meeting of the Southern Section of the Rhinological, Laryngological and Otological Society in Washington, in discussing a paper of Dr. Jervy's on "The Truth About Tonsils and Adenoids," I stated that there was too much operating on the tonsil, just as there was too much operating on the appendix and the mastoid, and that many of these operations were unnecessary. I admitted I might have to plead guilty to the charge myself, but promised in the light of recent experience to reform.

The older I grow and the larger my experience, the more conservative I become.

I don't mean to say I advocate leaving diseased tonsils in the throat, but I do say that all tonsils are not bad tonsils, and that the ex-

*Read before the Tri-State Medical Association of Virginia and the Carolinas, at Norfolk, Va., February 19-21, 1913. For discussion, see page 254.

cessive radicalism that has become rampant goes too far in the destruction of a part of the economy that a benign Providence gave us for some useful purpose. What this purpose is we do not exactly know, but that it subserves some important role is unquestioned.

The same year (1910) I read a paper before the North Carolina Medical Society on "The Tonsil," in which I took a more decided stand against the indiscriminate slaughter of these appendages of the throat.

In this paper I presented a brief outline of the accepted views on the as yet undetermined function of the tonsil, the role it is supposed to play as a focus of infection and transmission of certain pathological conditions, and my own conclusions, based upon a long and large experience, about its removal and the methods of doing so.

Since then, from further clinical experience and from reading the recent investigations into the anatomical relations of the tonsil to the lymphatic system (notably the publications by Hartig, Poli, Logan Turner, Burchaert and others) I am convinced that I was not only not too conservative, but not sufficiently so. Hence I wish again to enter a protest and a word of warning in this Society about this reckless destruction, this immolation on the altar of a medical fashion, of a possibly necessary and much maligned organ.

Knowing so little of its physiological function, but certain that it has some important function to perform, or it would not be there, how can we tell what wrong we are doing to the general economy by its extirpation?

The exaggerated views, so commonly held, of its danger as a focus of infection, and which are responsible for its wholesale destruction, must be materially modified, if it is not a lymph gland and has only slight communication with the lymphatic system.

If it is a portal of infection the whole of Waldeyer's ring (the pharyngeal tonsil and its pharyngeal and nasal connections) must be considered equally so, or even more so, because of its more numerous lymphatic ramifications.

It is a well-known fact, enunciated years ago by Jacobi and confirmed by numerous observers since, that diphtheria, limited to the faucial tonsils, is a very mild type of the disease, but when the pharynx and pillars are involved, it is more severe, and if it attacks, or spreads to

the naso-pharynx, it was nearly always fatal prior to the discovery of antitoxine. This would seem to demonstrate that infection through the lymphatic connections of the nose and naso-pharynx was more to be dreaded than through those of the tonsil. Every throat man knows that follicular tonsillitis is a common sequela of operations on the naso-pharynx, such as removal of adenoids, turbinectomies, cauterizations, etc. I have seen it follow removal of adenoids, even when the tonsils were taken out at the same time, or previously,—and this is due to infection through the nasal lymphatics. If rheumatism with endocarditis, if nephritis, if adenitis and other constitutional infections can have their starting point in the tonsil, why not equally from any part of Waldeyer's ring, as the whole of the upper part of the throat and naso-pharynx is a storehouse for the streptococcus and other pathogenic bacteria?

It is claimed by eminent authority that the tubercle bacillus is found in numerous apparently healthy throats, waiting for favorable conditions to produce infection. If this is true, why is it that tubercular infection does not oftener start primarily in the throat? Thus far, few clinical facts have been adduced to demonstrate this. In fact the actual demonstration of infection through the tonsil cannot be made at all, because the theories about it are based on an apparent clinical connection between a diseased tonsil and the supposed species of infection, and it is purely empirical reasoning.

The fact, however, remains that the clinical experience of numerous observers seems to show some connection between the tonsil and some forms of infection, and as this is the basis of most medical hypotheses, we are warranted in accepting this conclusion, until we find we have been mistaken in our premises.

Laboratory investigations to some extent seem to confirm these clinical observations; but, on the other hand, how many cases of the same kinds of infection are met with, that can in no way be traced to a tonsillar origin, in which, even if the tonsil is manifestly present, there is no evidence of a diseased condition to account for the infection?

The nose and mouth are the portals of entry for most of the pathogenic bacteria that cause infective diseases. Why then do so few who are exposed to those causes contract these

diseases? Why do we not have more cases of infection when we consider that every child has tonsils? Is there not something in these cavities that neutralizes or destroys the virulence of these germs? Might it not be Waldeyer's ring, including the faucial tonsil, that is the bulwark against infection? It is claimed that this acts as a barrier to the entrance of micro-organisms, etc., that it assists leucocytosis, and produces phagocytes. In other words, the healthy tonsil is a protective organ against infection, and although the crypts may swarm with bacteria, these stimulate its epithelial cells to throw out a ferment which in turn destroys the micro-organisms, a process known as bacteriolysis (Wright).

If the cells lose their tone by pathological changes, local or constitutional, this process is arrested and infection takes place.

Wood says that bacteria in the crypts are destroyed by migrated polymorpho-nuclear phagocytes, before they cause any injury, but if toxin from these bacteria is at all virulent, it breaks down the resistance of the cryptal epithelium, which is the first step from immunity towards infection.

Wright seems to think that, in the civilized man, the enlargement of the tonsil is a protective physiological act of the organism whilst he abstains from positively asserting it. He looks upon the recurrence of tonsillar enlargement in children who have had a partial removal or tonsillotomy done, as evidence that nature needs it in her defensive armament; and he quotes a parallel in biology to enforce his statement.

As long as our knowledge of the function of the tonsil is in such an uncertain stage, should we not give it the benefit of the doubt, and be more conservative about depriving the system of what may be a most important adjunct to its well being, at least in the early years of life?

Here I say again that I do not wish to be understood as saying that the tonsil should never be removed; there is enough clinical evidence to show that in a diseased condition it may do much harm, and then, and then only, should it be operated on.

Large tonsils are not necessarily diseased tonsils, and should be let alone unless they interfere with breathing. Obstruction to breathing is rarely due to large tonsils, but usually to the presence of adenoids or hypertrophied nasal

tissues. *Adenoids should always be removed* as they either obstruct free respiration, block up the pharyngeal openings of the Eustachian tubes—producing deafness, or causing a catarrhal secretion from the naso-pharynx. But the habit of most throat surgeons of always removing the tonsils, when operating for adenoids, whether the tonsils are diseased or not, should be discouraged.

What influence the presence or absence of the tonsil has upon the development of the singing voice, or whether their removal does damage to a voice already developed, is an open question. I have never known of a case in my own experience, where any bad result to the voice has come from removal of the tonsil. But other observers have reported cases in which the operation has brought about decided changes for the worse in some singers, whether from the mere fact of the removal of the tonsil, or from the resulting adhesions about the pillars, they were unable to decide.

When, however, there is no doubt that the condition of the tonsil necessitates its removal, the method has to be considered. Whilst in most cases of diseased tonsils I do a radical extirpation in its capsule, there are many cases when this is not advisable, and tonsillotomy, or removal of part of the tonsil only, or shrinkage by cauterization, are preferable methods, especially where a reduction in size is all that is advisable.

Operations on the tonsil are serious operations; in fact, most of them should be considered major operations because of the attendant risks, and should not be undertaken lightly nor by anyone who has not had sufficient experience to be prepared to meet the dangers that may present themselves.

200 East Franklin Street.

A HUMAN BEING WITHOUT A CEREBRUM.

By THEODORE HOUGH, Ph. D., University, Va.
Professor of Physiology, University of Virginia.

The results of the classical experiments of Goltz, reported in 1892, in which he succeeded in removing the cerebrum from a dog and keeping the animal under observation for more than a year, are given in all the recent text-books of physiology and are generally known to the medical profession (cf. Howell's Text-book of Physiology, Chapter IX). The animal, it will be remembered, retained perfect power of loco-

motion and would answer to many sensory stimuli, although not in an intelligent way. "If, for instance, a painful stimulus was applied to the skin he would growl or bark and turn his head toward the place stimulated; but did not attempt to bite. No caressing could arouse signs of pleasure, and no threatening signs of fear or anger. Like the pigeon, the most conspicuous defect in the animal was a lack of intelligent response,—that is the responses to sensory stimuli were simple and evidently did not involve complex associations with past experiences. His memory records for the most part had been destroyed. Goltz records that when starved he showed signs of hunger, and that eventually he learned to feed himself when his nose was brought into contact with the food, although he was not able to recognize food placed near him. He would reject food with a disagreeable taste. When sleeping he gave no signs of dreaming, differing in this respect from normal dogs." (Howell).

In Pflüger's *Archiv. für die gesammte Physiologie*, 1913, Vol. 152, p. 535, Edinger and Fischer report the findings in a very remarkable case of a human being who died at the age of $3\frac{3}{4}$ years and whose cerebrum was found at autopsy to be entirely lacking in nervous elements, being composed of a thin mass of neuroglia. All parts of the nervous system posterior to the cerebral hemispheres (palæencephalon) were normal, except that they were somewhat smaller in size than is usual, and the putamen on one side was lacking. All tracts from the neencephalon into the palæencephalon were lacking and the entire thalamus as far back as the palæencephalic ganglion habenulæ was atrophied. Fibers to the red nucleus, to the corpora quadrigemina, and to the stratum intermedium pedunculi were also lacking, as well as the entire pes pedunculi. Also all the longitudinal bundles from the cerebrum to the pons were absent, but the ganglia of the pons were intact and the middle cerebellar peduncles from them were apparently normal. A previously unknown tract from the forebrain into the nucleus dentatus cerebelli was atrophied. The pyramidal tract was totally lacking in the cord.

Information with regard to the condition and behavior of the child was obtained from the mother (aet. 25, primipara) who was a very intelligent woman. Immediately after birth the

child took the breast. At first it was awake only during these periods of suckling. It had to be awakened to be fed and after feeding it immediately went to sleep again. During the first year it was never heard to cry, though sometimes it would whimper a little. It gave no sign of hunger or thirst. In the fourth week the parents noticed that its arms and legs which were never spontaneously moved, were in a state of strong tonic contraction. The arms were stretched forward, the forearms slightly flexed, and the fists clenched.

In the sixth week it ceased feeding from the breast and took food from a spoon. In the course of the fourth month, the mother noticed sucking movements of the lips and from this time the child was fed from the bottle; but it never attempted to hold the bottle in its hands. It would suck only when there was milk in the bottle. It had to be waked each time to take food. It never cried for its bottle. It never recognized its mother, either by sight or hearing.

The eyes when open were always directed upward. Although repeated efforts were made to test the presence of vision, the child seemed to be totally blind, although it would close its eyes tightly when they were strongly illuminated, and this closure of the eye-lids was usually accompanied by a cramp-like frown. Similarly it could be startled by a sudden loud sound, but gave no sign of hearing, although the mother frequently tested for the presence of this sense. Similarly there was no evidence of feeling; the balls of fingers or toes were often pinched without effect.

When the child cried, which it did almost constantly during the waking hours of the last months of its life, its mother could quiet it by rubbing its head or pressing the child to her bosom; and it would begin crying again as soon as this rubbing or pressure ceased. From the second year to the time of its death, it cried day and night when awake, except when prevented from so doing by these means.

There was no expression of countenance, except that at the time of waking—but never in the fully awake condition—the lines of its features suggested a laugh. Thus it lay for a whole year quietly in a sort of sleep, never turning in its bed. Often after the first year an opisthotonic stretching movement occurred. It never turned its head toward the light or in

other ways gave evidence that it perceived anything.

From the fourth month onwards the teeth were cut and when several had appeared the child would grate them together for hours at a time, indeed almost continually when it was awake and not crying.

The child lived in this condition for three and a half years, at which time a cough appeared from which it never recovered. It was greatly emaciated at the time of death. This may have been due to improper feeding. It was fed regularly but the mother never knew when it was hungry nor when satisfied; so she fed liberally at each feeding, and this would at times be followed for days or even for weeks by periods of vomiting during which little or nothing was eaten. Toward the last it slept altogether.

Edinger compares the condition of this child with that of Goltz's decerebrized dog. The dog soon walked again and even surmounted obstacles in its way while the child lay for three years contracted and motionless. It had never used its hand to grasp or hold on to anything. The only motility shown was that in the face (sucking, frowning and grating the teeth). Of the marked unrest which characterized the dog and led him to keep moving about continually there was in this child no sign unless it was the continual crying after the beginning of the second year. Sleeping and waking regularly alternated in the dog; the child showed no such regularity of such alternating periods and for a large part of its life it would sleep on continuously except when awakened to take food. Conscious sensation seems to have been absent in both cases although in both certain visual reflexes were present. From the child it was impossible to evoke any sort of a psychic reaction, while some trace of this was seen in the dog, as shown in the above quotation from Howell.

Edinger interprets this as showing that, unlike the higher mammals, man can do virtually nothing with the palæencephalon and spinal cord alone. In the vertebrate scale, we find that complete removal of the cerebrum in the fish and amphibian does not in the least impair the possibility of executing movements, although it may cut out the element of volitional control. In the higher mammal (dog) the absence of the volitional factor leads to obvious changes in behavior; but the animal still retains

the power of executing many quite complicated movements such as those of locomotion. In man these movements are not observed. Too much has been taken from the nervous machinery to leave it the power to execute more than a few very simple acts.

While this view finds strong support in the facts, it seems to the reviewer that Edinger overlooks the fact that the dog was decerebrized after the structures of the 'tween-, mid-, and hind- brains and of the cord had undergone their normal development with a normal cerebrum present all the while. In the case of this child there is no evidence that the cerebrum was ever present; and we are not justified in assuming that these lower centers were the same as they would have been in a child $3\frac{1}{2}$ years old which by some accident had lost the cerebrum at that time of life after normal development had until then taken place. In other words, we are not justified on this evidence in assigning to the lower brain centers and cord of man such complete inability to execute complicated actions as were found in this child. Thus far no experimental results have been published in which the cerebrum of a dog was removed at the time of birth and the condition of the animal observed after the usual period of growth had been completed. Such a case rather than that of Goltz's decerebrized dog would be comparable with the child described by Edinger.

HYDATID CYST OF THE LIVER.*

By WILLIAM M. SOWERS, M. D., Washington, D. C.
Associate in Surgery, George Washington University,
Medical Department.

Patient, P. C., admitted to hospital August, 1911. Male, 29 years old, an Italian who had lived in Sicily until he came to this country 8 years ago. Barber by trade.

Complaint:—Lump in right side below costal margin. Indigestion.

Personal History:—Married; four children, all born in this country and healthy. Wife healthy. Patient had tape worm when 18 years old, which he carried for four or five years.

Came to United States in October, 1903. No history of dysentery, no bloody stools. Never any attacks of abdominal pain. Never jaundiced. No history of typhoid or any severe

*Read before the Medical and Surgical Society of the District of Columbia, May 1, 1913.

illness. Had slight diarrhoea six months ago. Has never been very robust and suffered for a good many years with slight digestive disturbance after eating—not associated with pain or vomiting (never vomited blood), but heart burn and eructations (hyperacidity).

Personal Inspection:—The hard lump was noticed about two years ago and has increased somewhat in size since he first discovered it. There has been practically no pain or tenderness in the right side and only the stomach symptoms already mentioned since the lump appeared. He is now much worried about his condition. There has been no noticeable loss of weight or strength and patient was at work up to the time of admission to the hospital.

He does not keep a dog around the house. Does not frequent slaughter-houses, and there are none near his dwelling.

Examination:—Young man, fairly well nourished and muscled. There is not a suggestion of jaundice of sclera or skin and no excess of pigmentation of skin. His complexion is rather sallow but he is not anæmic. Temperature normal. Tongue moist and slightly coated. Pulse is of good quality, regular, between 70 and 80 to the minute.

Heart and lungs are clear. There was no dulness in lower right front or axilla to suggest an increase in size of liver upward.

Abdomen—free respiratory movements, and rather scaphoid in shape. When abdominal muscles relaxed, there was a visible mass projecting below right costal margin, irregularly oval in shape, about the size of an egg, and lying outside or to the right of the usual situation of the gall bladder. It can readily be seen and felt to descend with each inspiration. On palpation the mass feels larger than a good sized lemon, is irregularly nodular and at the lower most prominent part is very hard—almost like cartilage or bone. No fluctuating areas made out. No tenderness. It is flat on percussion and apparently the dulness over mass is continuous with the liver dulness. The liver dulness extends to the costal margin in the right nipple line and the edge of liver can be felt. The edge of liver palpable is smooth and normal in shape and merges into the mass. The notch in the liver edge can be felt to the inner or left side of the mass. The left lobe of liver is not enlarged, and spleen is not enlarged. The lower pole of right kidney can be felt on deep

bimanual palpation. There is very little change in the position of the mass when patient turns from side to side or gets in knee-chest position. It seems to extend deeply beneath liver. There is no dulness in flanks and no other masses or nodules felt throughout the abdomen.

The stomach is not enlarged,—nothing can be felt in the epigastrium and there is no tenderness. There is no general glandular enlargement. Stools contained no blood, only a little mucus—no parasites—urine and blood negative.

In the differential diagnosis were considered as possibilities hydrops of gall bladder, syphilis of liver, carcinoma of gall bladder, carcinoma of large bowel adherent to under surface of liver. None of these seemed satisfactory. Absence of pain and tenderness and no previous attacks of pain, and the lack of jaundice seemed to rule out any inflammatory condition of the gall bladder. The long duration of the palpable mass, the good general health of the patient and the absence of symptoms and signs in the organs from which a carcinoma would grow, the stomach, gall bladder and intestine, caused me to scarcely consider carcinoma. Against syphilis of the liver were the facts that the liver was practically not enlarged, was not irregular and there was no jaundice. There were no evidences of syphilis elsewhere, and no history of syphilis. Exploration was made with the idea that the condition was an unusual one, and the diagnosis reserved.

Operation:—August 11th, 1911.—The abdomen was opened through an incision made directly over the mass and parallel to the right costal margin. A hard, grayish white mass presented. It was situated to the right of a normal gall bladder and projected from the edge of the liver in such a way that a thin wedge-shaped portion of liver substance covered it extensively both on its anterior and posterior surfaces. Anteriorly and at the lower pole of the mass it was very hard and fibrous; posteriorly, when finger was slipped beneath the liver, it could be felt to be slightly fluctuant. The rest of the liver was perfectly smooth and normal in size. The lappets of liver covering the thick-walled cyst were stripped up by blunt dissection (there was no line of cleavage) and the mass removed. The oozing cavity in the liver was obliterated by heavy cat-gut sutures and the bleeding satisfactorily controlled. A strip of

iodoform gauze was left down beneath edge of liver and brought out at lower angle of the wound. The recovery was uneventful. I have seen the patient several times and apparently this was his only hydatid cyst.

Commonly these large cysts of the liver are evacuated, curetted and packed, making a large granulating wound which takes a long time to heal. It was fortunate that this mass was so situated that it could be easily removed in its entirety without opening. (Where disease is common surgeons practice peeling out inner part on hydatids in hogs.)

The disease is called *echinococcosis*, *echinococcus disease*, and *hydatid disease*. Found especially in Iceland, certain parts of Germany and in Australia. Sporadic cases occur in this country as in most countries but most occur in immigrants who were infected before they came.

The adult form is a small tape-worm. It has a head with from 28 to 50 hooks, a short neck, and 3 or 4 segments. This adult worm occurs in the small intestine of dogs, wolves, jackals, and it can develop in cats. "The larval stage which is responsible for the case I have reported occurs in sheep, cattle, hogs and certain wild animals, in all 27 species of mammals. From the public health point of view it is especially the dog, sheep, cattle, and swine which come into consideration. Man is probably an accidental though not a rare host.

"The gravid terminal segment of the tape-worm is discharged in feces of dog, and the egg gains access to the intermediate host (sheep, cattle, hogs, man, etc.) through contaminated food, drinking water, and in man from petting dogs. When it reaches the stomach the six-hooked embryo escapes from its shell, and by means of its hooks bores its way to various parts of the body, especially to the liver. Here it comes to rest, and, increasing gradually in size, it presents a thick outer cuticle and an inner layer surrounding a cavity filled with fluid. An outer connective tissue layer is furnished by the host.

"Broad capsules arise from the innermost layer and hang into the cavity and heads form in these broad capsules. If this stage is fed to dogs (as they may get them around slaughter-houses) each head develops into a tape-worm. Daughter cysts and even grand-daughter cysts may develop inside of the original cyst, or these

may escape through the parent cyst-wall and cause multiple cysts in a liver (rare in man.)"[†]

H. O. Somer several years ago collected 100 cases in man in the United States and 12 from Canada. They are commoner in rural districts where "country slaughter-houses flourish." In Iceland it is said that 1 in 43 or 1 in 63 of inhabitants have the disease—and that 25% of the dogs are infected.

The growth of cysts in man is very slow and authority exists for cases in man of two to eight years duration and even longer. They have even attained 22 to 44 pounds in weight. The worm larvae may die and the cyst become gelatinous and thick and the hooks be found scattered about in the thick opaque contents of the cyst. Sometimes these cysts suppurate.

It has been stated that (without operation) 50% of the infections are fatal within 5 years.
1707 Massachusetts Ave. N. W.

CONGENITAL PYLORIC STENOSIS, WITH REPORT OF CASE.*

By LYLE S. BOOKER, M. D., Durham, N. C.

There is at least one condition of the alimentary tract in early infancy which demands surgical treatment. The pediatricist must concede this one condition; and the surgeon must make good his claim. Then one more cause of infantile death will be known, and may be averted.

The first reported case of congenital pyloric stenosis was by Hirschsprung in 1888. The first successful operated case was by Lobker in 1898. Since this time the many reported cases have clearly established the clinical picture and pathologic anatomy. However, there is still considerable diversity of opinion in regard to many points of pathogenesis and treatment.

This diversity is, no doubt, in a large measure due to the fact that two types of condition exist and have been referred to under the same name,—one a simple spasm of the pylorus with some hypertrophy of the pyloric ring and pyloric end of the stomach; the other in which the spasm is associated with a true hyperplasia in the walls of the stomach and duodenum.

These two types of disease probably stand in close genetic relation to each other, but practically they are very different. One is a func-

[†] I have quoted Dr. Chas. Wardell Stiles' article in "Modern Medicine."

*Read before the North Carolina Medical Society, at Morehead City, June, 1913.

tional trouble and a medical disease; the other, a true organic obstruction and amenable to surgery only. Of the latter condition, I beg to report the following case, with courtesy to Dr. W. W. Olive, in whose practice this case occurred.

Ralph D., the fourth child of healthy parents, was born at full term after a normal labor. He was normal at birth and weighed eight pounds. The first four weeks he was nursed at two hour intervals and made decided gain in weight. During the fifth week he began to vomit at irregular intervals and to be constipated. The vomiting sometimes occurred immediately after feeding, but usually not for an hour or more. Sometimes several feedings were retained and then vomited together.

In spite of the very best medical and dietetic treatment the vomiting and constipation had progressively increased. The vomiting had become explosive in character, and the constipation almost absolute. Enemas and purgatives failed to produce more than small actions of bile-stained mucus. No milk curds were in evidence. He acted hungry at all times and cried a great deal apparently from hunger.

When seen in consultation, then eight weeks of age, his weight was one pound less than at birth. There were present all evidences of malnutrition and marasmus. One was struck by the prominent appearance of the epigastrium as contrasted with the retracted sunken abdomen below the umbilicus. Visible waves of peristalsis passing from left to right were easily seen. No distinct tumor could be palpated.

Examination of heart, lungs and nervous system were negative. Diagnosis of pyloric obstruction was made and operation advised. Patient admitted to Watts' Hospital, April 20, and after usual preparation ether was administered and abdomen opened through a right rectus incision. The pylorus and duodenum free of all adhesions presented a small mass about one inch in length, size of distal phalanx of index finger, smooth and of cartilaginous firmness.

A posterior gastro-jejunostomy was done after the method of Moynihan, using fine Pagenstecher linen and zero cat-gut. Nothing was done to the pylorus as nature had nicely obliterated this opening. Abdomen closed in usual manner and child returned to bed.

Post-Operative Course.—Shock was insignificant; bile was vomited at intervals for several days, and there was almost immediate improve-

ment in child's condition. Rectal feeding was done for first two days, then mother's milk was begun and continued. Patient was discharged from hospital in ten days, having gained a pound in weight.

Now, two months since operation, baby weighs 15 pounds, is fat and plump, rarely eructates his milk, and bowels are moving normally.

I wish now to speak of the more important and accepted facts, namely the pathology, diagnosis, prognosis, and treatment.

1. *Pathology.*—In the face of its occurrence in the very young and almost exclusively breast-fed children, its origin can scarcely be considered as being due to disturbances of digestion, diseases of the mucous membranes or abnormal, chemical processes. Its etiology is therefore obscure.

A tumor is always present; it is a passive tumor, and muscle stimulation is not necessary for its existence. This forms a mechanical stricture, just the same as a strictured urethra or bile-duct. There are no adhesions or products of inflammation about it. It represents an over-growth of muscle tissue.

Microscopically, the most important change is the great increase in the thickness of the circular muscular layer. To a lesser degree hyperplastic changes occur in the longitudinal and the connective tissue of the sub-mucosa.

2. *Diagnosis.*—The appearance of vomiting in otherwise apparently healthy breast-fed children; progressive and continuous, explosive in character, containing no bile, and fails to respond to medical or dietetic treatment. The small meconium-like stools containing almost no fecal residue are not consistent with any other condition.

Physical examination verifies the diagnosis. The empty retracted abdomen below the umbilicum, the full and distended epigastrium, the visible peristaltic waves, and the palpable tumor are proof positive.

3. *Prognosis.*—Treated medically, most cases of congenital pyloric stenosis die of starvation, and marasmus, inanition, acute gastritis, catarrhal dyspepsia or pyloric spasm and are so credited on the death certificate.

Some cases of moderate degree get well, many of which, however, have to be operated on before reaching maturity.

Dr. Murphy's February, 1913, *Surgical*

Clinics report a case two years of age, weighing only thirteen pounds.

The estimated mortality from an expectant medical treatment is between 80 and 90 per cent (Monier).

What, then, does surgery offer?

From the first successful operation in 1898 to 1905, a period of seven years, the operative mortality was 46.5 per cent. A high mortality, but a great improvement over the medical mortality.

Since 1905 the mortality has been lowered to less than 10 per cent.

Dr. Scudder of Boston reports a series of thirty-three cases operated by different surgeons in the United States, with three deaths—a mortality of 9 per cent. The same author in *Surgery, Gynecology, and Obstetrics*, September, 1910, reports a series of interesting investigations on the effect of gastro-enterostomy on digestion and metabolism. Of fourteen cases studied two to five years after operation, he concludes that, with all chemical evidence and clinical facts considered, the evidence is overwhelming that in these babies gastro-enterostomy has no ill effect on metabolism and normal growth and development.

He further proves by X-ray examination that the obstructive tumor persists and that the operative stoma continues to functionate and accommodates the child in after-life.

4. *Treatment*.—If, then, our pathologic picture be correct, the treatment will be obvious. No one would attempt to treat a mechanically obstructed esophagus, intestine, bile-duct, or urethra, medically.

The two indications for surgical treatment are:—

First, To meet the emergency of starvation by overcoming the obstruction at the pylorus.

Second, To restore the continuity of the alimentary tract so that it may serve the individual through life.

The best operation to meet the demands is the posterior gastro-enterostomy.

Conclusions:—

1. The pathogenesis of this condition is unsettled.

2. The diagnosis is usually not difficult.

3. The indications for surgical treatment are common sense ones.

4. The operation best suited to this condition

is the posterior gastro-enterostomy. It is ideal in that nature has prevented the possibility of a vicious circle by obstructing the pylorus.

5. The operative mortality is low.

VACCINE THERAPY IN GENERAL PRACTICE.*

By M. PRICE DE BOE, M. D., Route No. 3, Bedford, Va.

Vaccine prophylaxis is, in reality, not a new subject by any means. It is almost as old as the history of man. For countless ages this potent agent has been used as a prophylactic by heathen races in various parts of the world.

About the eleventh century vaccination to prevent small-pox was started in China. The art was gotten from the Arabian physicians through the agency of the Tartars and Chinese traders. They vaccinated on the septum of the nose to prevent an external scar.

According to Humboldt, vaccination with cow-pox has been practiced by the Indian shepherds of the Cordilleras of Mexico "since the earliest recollection of man." Brum speaks of the Elihats of Beluchistan in like manner. Metchnikoff mentions the instance of Serpa-Pinto who was immunized to snake-venom by the Vatuas, who are natives of the East coast of Africa. They made a paste by mixing the venom of a serpent with a powdered herb and applied it to a fresh incision in the skin. Subsequent tests prove that Serpa-Pinto was really immune.

As is well known, the dairy folk of England first observed the marked immunity against small-pox which was exhibited by those who had been infected with cow-pox. It was a dairy maid who brought this to the notice of Jenner; then he in turn immortalized his name by presenting it to the London Medical Society.

So we have had a hint of this form of specific therapy and prophylaxis for at least eight hundred years and, because of the uncertainty of the acting principle it had to await the advent of the microscope and this pregnant age to awake it from its lethargy.

With due respect to drug therapy, let us compare histories for a moment. During the reign of the third and fourth dynasties in Egypt, about 3000 B. C., the Egyptians used about seven hundred drugs in their pharmacopœia, and since Hippocrates the modern profession has been using drugs in every ailment to which man is

*Read before the Bedford County (Va.) Medical Society, May 26, 1913.

heir. Now, looking back over five thousand years of history, how many real specifics do we find? About two—quinine and mercury. Since the discovery of microorganism by Leeuwenh  ek, which marked the dawn of bacterial research and was the forerunner of biologic therapy, how many specifics do we find in their realms? Not fewer than six, as infallible in their action as quinine and mercury. Now this is no argument against drug therapy, but it is only to demonstrate the rapid progress of biologic therapy.

The biologic products which we will discuss tonight are vaccines proper.

Vaccines are suspensions of dead bacteria in a normal salt, plain or antiseptic liquid, usually water. They are clear or slightly milky in appearance, depending upon the number of bacteria in suspension.

Vaccines act by stimulating an artificial immunity. In order to see how this is accomplished we will review Ehrlich's side-chain theory, which is at present the most acceptable theory. The substance of it is this: The cells of the body are made up of certain groups of atoms of unknown chemical character, which make it possible for them to combine with food stuffs, as it is through them that substances are received into the cell. Now, as it is necessary for a toxin to get into a cell before it exerts its effect on the cell, it has to be made up of a group of atoms, which are capable of combining with those of the cell. The cell atoms are called receptors and the toxin atoms are called haptophores. When a toxin unites with a cell it produces more or less damage to the cell's vitality. But if it does not destroy the cell, the cell responds to the stimulation and regeneration takes place. The receptors which combine with haptophores of the toxin molecule are cast off. Then the cell does not only replace these receptors, but it manufactures an excess of receptors, which are also cast off. These cast-off receptors or side-chains still retain their power of combining with the haptophores of the toxin molecule and constitute the antitoxin. Now these cast-off receptors have a specific action on the toxin which stimulated their formation, e. g., receptors which are formed because of the stimulation of a streptococcus toxin will only neutralize a streptococcus toxin. Now this theory not only explains, fairly satisfactorily, the immunizing power of germ toxins but it also explains another phase of the subject—the tonic

effect. When the receptors of the cell, whose original function is to combine with food stuffs, are increased in number, you see it enables the cell to take in more nourishment. Thus we have improvement in a patient after undergoing an attack of an acute infectious disease or taking a prophylactic dose of typhoid vaccine.

Indications:—Vaccines are indicated in any infectious disease in which the infecting organism is established. They should be given only to patients whose vitality is sufficient to combat their present symptoms and in addition be able to generate antibodies.

Dosage and Administration:—The dose of vaccine should be sufficient to produce some reaction but not large enough to produce a very decided negative phase. The interval between doses varies from 24 hours to 7 days. The interval should be long enough to allow the reaction to take place. Vaccines are administered, *per orum*, intravenously, intramuscularly, and subcutaneously. The latter is the preferable method.

Contra-Indications and Dangers:—No vaccine should ever be given a patient who is practically exhausted, as he is liable to pass overboard when his bit of reserve energy is used to manufacture an antitoxin. Serum is the indicated biologic product in such a case. Guard against too large a dose when a patient is advanced with disease. Aseptic precautions are necessary in the administration of vaccine. There is more danger of infection than there is in an ordinary hypodermic. Anaphylaxis should be watched for, though the writer has never seen a case—an experience with about 150 cases of various infections.

Single Strains and Mixed Vaccine:—A single vaccine should always be given when the specific germ can be determined, but in some internal infections, and a great number of urgent cases, the country doctor is unable because of lack of time and laboratory equipment to determine the guilty bug. Then a mixed vaccine should be used. In abdominal troubles such as appendicitis, a mixture of colon bacilli and staphylococci may be used. In conditions of the respiratory tract a mixture containing the micrococcus catarrhalis, pneumococcus of Fraenkel, and the ordinary pus germs—streptococcus and staphylococcus aureus and albus—is always indicated as these germs are nearly all always present in

pneumonia, bronchitis, colds and mixed tubercular infections.

In urinary and pelvic inflammations always take care of the colon bacillus and ordinary pus germs.

Adjuncts to Vaccine Treatment:—Any thing that aids the healing process is synergistic to the vaccine. When there is confined pus, drain it. Bier's hyperaemic, hot and cold applications and drug therapy are highly beneficial when indicated. Bier's hyperemia aids by drawing more blood to the part, thus bringing more antibodies—agglutinins, opsonins, precipitins, etc.—to the infected part. The alimentary tract should be cleaned out and cleaned up and the emunctories put to work.

Proceedings of Societies, Etc.

AMERICAN PROCTOLOGIC SOCIETY.

Reported by A. J. ZOBEL, M. D., San Francisco, Cali.

The following is an abstract of the principal papers read before the American Proctologic Society, at its meeting at Minneapolis, Minn., June 16-17, 1913, editorial mention of which appeared in the preceding issue of the *Semi-Monthly*.

Proctology and Procto-Enterology.

By LOUIS J. HIRSCHMAN, M. D., Detroit, Mich.

Proctology is in reality the study of the entire intestinal tract, its diseases and their remedies. A proctologist becomes skilled to a high degree in the medical and surgical treatment of the diseases of the lower bowel. A medical practitioner, sufficiently skilled and competent to treat diseases affecting any portion of the intestinal tract, should be competent to treat all portions. The modern proctologist, therefore, must be an intestinal surgeon. He must have some knowledge of modern views and discoveries bearing on the digestive tract, as they have a direct bearing on intestinal function and pathology. He should no more limit his activities to the rectum and sigmoid alone, than does the laryngologist to the larynx, or the urologist to the urethra.

An arbitrary line of division which limits a specialist's activities to the lower six or eight inches of the colon is absurd. The proctologist has no moral right to withhold his special skill

in intestinal surgery from the patient who suffers from diseases of the small intestine or upper colon. The larger problems of intestinal stasis, chronic inflammatory conditions, and malignant diseases of the small and large intestines, demand the best that is in every Fellow of our organization. He should ever study and fathom out the problems of etiology, pathology, and proper therapy.

The establishment of a section on Gastro-Enterology and Proctology in the American Medical Association would greatly increase the value of that organization to every one of its members who comes in contact with diseases of the alimentary tract.

It is the American Medical Association which should foster all that is new and valuable in medicine. It is the greatest medical educational institution in our country; and the fellows of the American Proctologic Society should be the most enthusiastic supporters of such a section, if established.

A Method of Operating on Fistula Without Cutting Muscular Tissue.

By ROLLIN H. BARNES, M. D., St. Louis, Mo.

This method is used in those cases of fistulae which involve the sphincter muscles. An incision is made external to the sphincter, similar to that made when incising an ischio-rectal abscess. Through this opening the scar tissue is dissected out up to the internal opening. An incision is then made at the skin margin, so that the middle of this incision passes through an imaginary longitudinal line drawn from the internal opening. A submucous dissection is then channeled out up to the internal opening. Gauze drainage is kept in this until the external wound is healed sufficiently. Then the submucous tract, which remains, is incised under local anesthesia. No muscular tissue having been cut, the function of the sphincters is preserved intact.

Report of a Case of Fecal Tumor Associated With Hirschsprung's Disease.

By ALOIS B. GRAHAM, A. M., M. D., Indianapolis, Ind.

Dr. Graham reported a case of fecal tumor associated with Hirschsprung's disease, the clinical history of which is unique and exceedingly interesting. The patient, a young French woman, aged 27, stated that she had undergone three abdominal operations for Hirschsprung's disease, or megacolon.

Present illness dates from birth. Not unusual to go a week or ten days without a stool, and then evacuation was produced only by means of enemata.

At the age of 12, her condition was diagnosed as one of pregnancy on account of the vomiting and the appearance of the abdomen.

At the age of 19, she suffered an attack of complete intestinal obstruction due evidently to fecal tumor. She was operated, and a large fecal tumor was removed from the sigmoid. Six months later, she was operated for post operative adhesions. No resection of the bowel or short-circuiting operation was performed.

At the age of 25, she suffered an attack of complete intestinal obstruction. She was operated, and a large fecal tumor was removed. Patient stated that the bowel was plicated in closing. Wound healed promptly, but she remained in the hospital for three months purely for clinical purposes.

August, 1912, she, for the third time, presented symptoms of complete intestinal obstruction. She had been absolutely constipated for seven days. Abdomen enlarged and everywhere tympanitic except in the lower right quadrant, where there was a dull area corresponding to a large tumor which could be readily palpated. Tumor, a fecal mass, was exceedingly hard and did not pit on pressure. It could be easily moved in every direction throughout the abdomen. Attacks of violent, colicky pains were frequent. Vomiting was persistent, pulse 120, temperature 101 F. Hydrogen peroxide, introduced into the rectum, had no effect on the tumor, but produced excruciating pains over the entire abdomen. Patient consented to operation with the promise exacted that nothing radical be attempted. She requested that the fecal tumor be removed, but refused to give her consent to any short-circuiting or resection of the bowel.

Median incision. No adhesions. Fecal tumor in sigmoid. Tumor of "stony" hardness. Its greatest circumference was $19\frac{3}{4}$ inches, its weight was 64 ounces. The dilatation which was confined to the sigmoid was very marked, the greatest circumference being 20 inches.

Patient made an uneventful operative recovery, and was discharged from the hospital on the 10th day. She gained in weight and appeared to be in the best of health. She experienced no difficulty in procuring daily evacuations with the aid of small doses of cascara.

December 15th, 1912, was the date of her last visit to the writer's office. At this time she was doing nicely. Inquiries as to her whereabouts were made and the reports were to the effect that she had returned to France. Information was received the latter part of April that patient had gone to Chicago from Indianapolis. She evidently suffered another attack of intestinal obstruction. She was operated there April 19th, 1913, and died three days later.

A Further Consideration of Sir Charles Ball's Operation for Internal Hemorrhoids.

By ALFRED J. ZOBEL, M. D., San Francisco, Cal.

After a trial of this operation the author of the paper sums up his conclusions as to its value, as follows:—That, as a modification of the old ligature operation, it is better than the latter, and at the same time is far superior to the clamp and cautery operation, in that it takes care of and avoids the recurrence of that revoluted anal skin ring which generally becomes markedly edematous immediately after these operations, leaving behind skin tags after the swelling subsides. In every instance in which the essentials of Ball's technique have been followed out carefully the author's results have been exceedingly satisfactory. The operation is recommended.

Deductions Based on an Analysis of 3,000 Rectal Cases.

By T. CHITTENDEN HILL, M. D., Boston, Mass.

The principle object of this tabulation of 3,000 consecutive rectal cases was to furnish data as to the relative frequency of the various affections of the rectum and colon. There was a total of 1,120 operations performed in this series, and some deductions of a practical nature were drawn from this experience. It was found that rectal ailments were more common among males than females, the ratio being three to two.

Hemorrhoids formed a large proportion, 41% of the total. Next in frequency were abscesses and fistulæ, 18%, and the remaining disorders were tabulated as follows: pruritus ani 8%, anal fissure 10%, Colitis 6%, prolapsus ani and procidentia recti 3.7%, cancer of the rectum and sigmoid 2%, benign growths 1.5%, stricture 1.5%, syphilis 2%, constipation 2.8%.

Other miscellaneous conditions were recorded which made up but a fraction of one per cent,

such as anal verrucae, congenital stenosis, patulous anus, pilo-nidal sinus, furuncles, foreign body, incontinence, coccygodynia, trauma, sigmoid diverticulitis, etc.

Z-Plastic Operation for Anal Stricture.

By WM. M. BEACH, M. D., Pittsburgh, Pa.

The writer states that extensive cicatrices, resulting from trauma, and involving the partial or entire anal circumference, not infrequently resist the usual methods employed to restore the physiologic function of the anus.

He therefore employed what he terms a Z-plastic method when operating on an anal stricture. The principle underlying the procedure is the transposition of dermic tissue in such manner as to obliterate the crest of the fibrous band.

The first incision is made along the crest of such a band; then incisions are made at right angles from both ends, but running in opposite directions, thus approximating the letter Z. The flaps thus outlined are dissected up, transposed, and sutured. Various modifications are permissible, according to the extent of the stricture.

Sphincteric Atrophy—Causes, Consequences and Treatment.

By RALPH W. JACKSON, M. D., Fall River, Mass.

Muscular atrophy about the anus produces more serious consequences than hypertrophy.

The physiology of defecation is studied, and the action of the internal sphincter and of the external sphincter and levators sharply contrasted with their different innervation. This is preparatory to consideration and classification of the causes of sphincteric disuse and consequent degeneration.

Congenital causes are found in imperforate anus and congenital ano-vaginal cloaca. Coincidental with general weakness cases occur in infants, the aged, and the extremely ill. Traumatic causes are faults of proctologic operations and after-care, or obstetric lacerations, or due to prolonged divulsion by protruding piles or procidentia. Nerve causes are primarily sympathetic, as in rectal stenosis, or central, as in spinal cord lesions.

Degeneration or absence of one sphincter without impairment of the other is considered.

The unhappy consequences of sphincteric inadequacy are presented.

Treatment is preventive or restorative.

Neither avails much when due to nerve causes, except possibly in luetic cases. Of first importance is the minimizing of trauma, both obstetric and proctologic, (especially sphincteric incision). Repair of trauma should be immediate and accurate. Later attempts are much more difficult and uncertain on account of atrophic muscular changes, and often results must depend on cicatricial contraction and adaptation of other muscles, especially the levators, to sphincteric duty. Restoration of long over-stretched muscles is largely dependent on general treatment.

Sphincteric deficiency is a troublesome problem to every practitioner, and the prognosis is uncertain.

Further Observations on the Surgical Anatomy of the Large Bowel.

By GRANVILLE S. HANES, M. D., Louisville, Ky.

Few realize that the capacious portion of the colon is at its cecal extremity. The diameter of the average cecum is estimated at three inches, which is about the same as the rectum, though the cecum and ascending colon have a much greater capacity than the rectum and lower extremity of the sigmoid. The large intestine gradually decreases in size from the cecum to the rectum; the descending colon measuring one and one half inches, or even less, at its narrowest point. These physical conditions explain in a measure the locality to which large quantities of fluids are transported when injected into the rectum.

The question of antiperistalsis in the large intestine in man is yet to be settled. It has been suggested that anastalsis may be inferred to exist in the proximal human colon for the reason that rectal enemas have been observed to traverse the entire length of the colon and escape through an artificial opening in the cecum. Also, because surgeons have attempted to stop a fecal-fistula discharge by transplanting the ileum into the transverse colon and sigmoid, but without success. The fact that rectal enemas have been seen to pass through the cecal fistula is, he is confident, little evidence of the operation of an antiperistaltic force.

An ordinary colon tube was introduced two or three inches into the rectum of a dog, and through a funnel inserted into the proximal end of the tube was poured in bismuth-buttermilk, and by the X-ray the author observed it traverse

the large intestine to the ileo-cecal junction with no sign of antiperistaltic movements. Similar experiments were made on children with corroborating observations. He has seen a pint of bismuth in suspension, when introduced into the rectum of an adult, pass around to the cecum in a few minutes with no evidence of aid by anastalsis.

Under normal conditions peristalsis in the large bowel is a slow process, and it is no more than natural to suppose that anastalsis is also slow in its operation. The brief time, then, required for fluids to pass from the rectum to the cecum compels us to consider the influence of other and more potent agents on the intestinal contents. Two factors are in operation when fluids are conveyed from the rectum to the cecum. The first is the distensible and elastic nature of the intestinal tube; and the second is the hydraulic principle which controls fluids wherever they may be. If fluid is forced rapidly into the rectum that organ will be seen to be widely distended; but this same fluid can be seen to make its way up the intestinal tube along the path of least resistance. The distended rectum, because of its elastic nature, presses upon the contents till every drop of fluid within its lumen is subjected to an equal pressure. So if additional fluid is forced into the rectum the same factors will continue to operate.

If the ileum is transplanted into the transverse colon or sigmoid the watery intestinal contents will be forced by the elastic intestinal tube in the direction of least resistance. The right segment of the colon is the capacious portion of the large bowel, so if fluids are under greater intestinal pressure in the lower bowel the fluid contents will travel up to the cecum.

The author says that even if we do admit the existence of anastalsis in normal conditions of the colon, he does not believe it to be an important factor in conveying fluids from the rectum up into the colon.

Hanes had a series of three X-ray pictures made on the same individual to show what actually happens when tubes are introduced into the bowel. The first shows a thirteen inch proctoscope introduced its entire length. The distal end is one inch above the umbilicus. The second shows an ordinary colon tube introduced its full length after the removal of the proctoscope. The tube passed along the sigmoid up to the highest point, (one inch above the umbilicus), and then

turned upon itself, the distal end passing back into the rectum. The third radiograph shows the bowel injected with bismuth buttermilk, and the thirteen inch sigmoidoscope introduced again. This picture shows that it is impossible to pass any instrument high up in a normal colon, except by the greatest accident. The sigmoid is lifted up into the abdominal cavity; its lower arm is occupied by bismuth and the metal tube; while the upper segment of the sigmoid is seen very distinctly where it has dropped back from a point opposite the umbilicus into the pelvis to its junction with the lower extremity of the colon. He claims the latter radiograph proves that it is impossible to pass a non-flexible instrument beyond the first half of the sigmoid.

To control the outflow of fecal material in colostomies the author has found, in five cases operated since January of this year, that the hard rubber rod can be allowed to remain permanently, when used as in the Maydl operation. The opening in the intestine is above the rod. A thin gauze dressing is applied over the bowel, and a strip of gauze is thrown around the knuckle of the intestine and overlying gauze is then tied under the supporting rod. The strip of gauze constricts both the upper and lower segments of the bowel, and exerts a most satisfactory control over these artificial openings.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Reported by EMIL MAYER, M. D., New York, N. Y.

The following are abstracts of the principal papers read before the above named Association, at its meeting in Washington, D. C., May 5-7, 1913, the President, Dr. Geo. A. Leland, of Boston, Mass., in the chair.

President's Address.

By GEORGE A. LELAND, M. D., Boston, Mass.

Our founders builded wiser than they knew when they chose the throat as a field for their specialty; for here, as shown by modern bacteriology and clinical observation, is the port of entry of many of the diseases to which poor human flesh is heir. It is well established that through the nose and throat may enter the micro-organisms which cause tuberculosis, nephritis, endocarditis, sepsis, cerebrospinal meningitis, acne, erythema nodosum, erysipelas, etc., and by extension up through the eustachian tube, aural diseases of all sorts leading to deafness.

pyema, meningitis, intracranial abscess, etc. It is the province of preventive medicine to obviate all this and to put the upper air passages into the best possible shape. If the nose and throat can be put in proper shape and continuously used, the occupation of the aurist will be gone except for the effects of traumatism and perhaps for the infections.

Further Observations on Some Anatomic and Clinical Relations of the Sphenoid Sinus to the Cavernous Sinus and the Third, Fourth, Fifth, Sixth and Vidian Nerves.

By GREENFIELD SLUDER, M. D., St. Louis, Mo.

In a previous communication (last May), in which the question was raised as to the etiology and treatment of migraine, Sluder made the statement that he believed that many (but not all) of the recurrent headaches which bear the name of migraine are sphenoidal empyemata which have lost most, if not all, local signs, or which were started as such empyemata, and that the nerve trunks had become involved either by extension of the inflammation (or its toxin) through the thin wall separating the sphenoid sinus from the adjacent nerve trunks. The results obtained during the past year in a goodly number of cases strengthen his belief in the correctness of the deductions detailed in that report.

Sluder observed that the third, fourth, and three divisions of the fifth, sixth and Vidian frequently lie in close association to the sphenoid sinus, a deduction drawn from specimens which he studied by cross sections. His findings, with the exception of the Vidian nerve, were corroborated by Ladislaus Onodi (*Archiv. fuer Laryngologie*, Bd. VI, Heft II, July 10, 1912). This author's method was to follow the nerve trunks in certain specimens, sometimes to remove the wall of the sphenoidal sinus, and then to study the relations of the nerve trunks thereby exposed. He found that they were in these close associations for varying distances, sometimes even as much as 20 mm.

He did not consider the cavernous sinus in these relationships. He pictures specimens where the sphenoid sinus extended so close to the clivus of Blumenbach as to make transparency of the separating bone, and shows how this brings the sixth into these associations. From an inspection of Dr. Warren B. Davis'

145 Caucasian specimens showing the nose and accessory sinuses from the eighth week of fetal life to the twenty-fifth year uninterrupted (several specimens for each year, except the eleventh year), Sluder observed that the sphenoid sinus spreads laterally at an early age, reaching to close proximity to the second division of the fifth as early as two and one-half years, and that this condition runs almost constant throughout the series. Its development (Davis) begins in the anterolateral aspect of the body, and slowly extends backward, spreading, however, rapidly laterally to approach the foramen rotundum, and then proceeding backward. As early as the sixth year the Vidian canal may be approached. Sluder considers that if he is right in the conclusion that the mode of production of these headaches—the pathologic sequence—is the close association of the sphenoid sinus to the nerve trunks, and that the inflammatory processes are transmitted through the thin bone separating the cavity of the sphenoid from the associated nerve trunks, then it is necessary that such anatomic associations be formed in early life as an explanation of such headaches beginning in early life. Another year of clinical observation strengthens Sluder's belief that the pathologic process underlying these cases is a hyperplastic sphenoiditis. From an observation of 100 cases he concludes that the second division of the fifth and Vidian are the nerves most frequently involved (95 per cent). They may be involved singly, or together, then making the picture which would otherwise emanate from the sphenopalatine ganglion. It is difficult to differentiate this class of cases from sphenopalatine ganglion neuralgia; hence, one should be carefully on guard. Since the previous communication, three medicines have been tried for intrasphenoidal use: Iodid of potassium in water, 2 to 5 per cent, proved to possess nothing upon which its use may be recommended; it is apparently inert. One per cent chlorotone in water proved to lack recommendations. The proprietary "cresatin" also failed to prove better adapted for these purposes than carbolic acid or oil of wintergreen. The medicines which have so far proved of greatest benefit are: One per cent carbolic acid in oil; 2 to 10 per cent oil of wintergreen and aqueous solutions of sodium salicylate, 2 to 5 per cent. These have been successful in allaying the pain long after the

sinus was satisfactorily opened and the wound healed.

The Faucial Tonsil as a Focus for Systemic Infection.

By GEORGE E. SHAMBAUGH, M. D., Chicago, Ill.

Formerly it was assumed that sore throat occurring in connection with acute rheumatism was but a local manifestation in the pharynx of the general systemic infection. It is now generally believed that sore throat in these cases represents the focus of entrance for the systemic infection. Furthermore, it is generally recognized that sore throat, for the most part acute tonsillitis, is very often the immediate cause for other systemic infections, such as acute endocarditis and acute nephritis. It has not been so generally appreciated that the faucial tonsils are very frequently the foci for chronic systemic infections, such as chronic arthritis, chronic neuritis, cardiovascular degeneration, and chronic nephritis. The general practitioner as well as the specialist has not fully appreciated the importance of the relation existing between infections, acute as well as chronic, of the faucial tonsils and certain systemic conditions. Very frequently in ill nourished children the removal of the tonsils results in such an immediate and astonishing improvement in general health that it can hardly be accounted for except on the assumption that the enlarged harmless looking tonsils contained foci for a mild systemic infection. In many of the tonsils there are dilated crypts containing the characteristic cheesy deposits which from time to time produce acute infection. The small tonsil embedded under a fold from the anterior pillar, and the tonsil with a deep horizontal fissure separating the upper from the middle thirds, are unusually susceptible to acute infections and are especially predisposed to the development of latent foci capable of causing systemic infections. Another type of faucial tonsil which is a frequent source of systemic infection is the stub remaining after partial removal, or where the tonsil has been subjected to igni puncture or surface cauterization. The treatment of a faucial tonsil suspected of harboring foci of infection is the same as such foci elsewhere in the body, namely, thorough removal of the suspected foci.

Results in a Series of Cases of Tonsillectomy at the Massachusetts General Hospital, Three to Four Years After Operation.

By J. PAYSON CLARK, M. D., Boston, Mass.

Postals were sent out in July, 1912, to patients who had been operated on in 1908, and 143 patients responded by presenting themselves to the clinic in person, where they were subjected to an examination and answered a set of questions with reference to the operation and after-effects. From these results the following summary is presented: The patients, with a few exceptions, were under fifteen years of age at the time of the operation. Hemorrhage after tonsillectomy calling for special treatment was of rare occurrence. The condition for which the tonsils were removed was relieved in nearly every case, even in those in which there was some tonsillar tissue remaining. An improvement of the general health was to be expected after tonsillectomy done for such cause. Children who had had tonsillectomy certainly showed no increased tendency to illness and were probably less susceptible than before the operation. The present health of these children is excellent in the majority of cases. What is apparently tonsil tissue is found much more often than supposed after tonsillectomy. The soft palate was symmetrical and the faucial pillars and tonsil fossæ normal in the great majority of the cases. The accidental cutting off of the uvula in four cases caused no bad symptoms. Most of the cases of sore throat and tonsillitis were relieved by the operation. In many cases in which there appeared to be tonsil tissue remaining, the patients were in perfect health, and in others in which there were symptoms, those were undoubtedly due in many cases to causes other than the tonsil remnants. The ordinary voice or speech may be said to be practically unaffected by tonsillectomy. No investigation was made of the singing voice. In most of the cases in which enlarged cervical glands could be felt, there was tonsil tissue present on the same side. In nearly half the cases in which there was tonsil tissue present, there were no enlarged glands. Carious teeth were apparently a direct cause of some cases of cervical adenitis.

Report of a Case of Ulceration of the Larynx, Perichondritis of the Arytenoid Cartilages, Abscess and Partial Exfoliation of Both Cartilages Resulting From Typhoid Fever.

By J. H. BRYAN, M. D., Washington, D. C.

This case is reported in order to emphasize the importance of making regular and systemic examinations of the upper air passages, especially of the larynx, in all cases of typhoid fever, in order to detect the early changes that take place in the mucous membrane of the upper air passages in this disease. The frequency of this complication in typhoid fever in Europe, according to Landgraf, is 11 per cent of all fatal cases; according to Griesinger, 26 per cent; Kanthack, 26 per cent; Ouskow, 30 per cent. It is difficult to arrive at any conclusion as to the comparative frequency of this complication of typhoid fever in this country and abroad. The figures given by Jackson seem to show that a much larger number of cases of laryngeal involvement occur in this country than is indicated by the figures given by Thompson. The epidemic in which Jackson made his observations was, however, an unusually severe one, and the subjects were largely of a poorly nourished type, and this may account for the apparently greater frequency of this complication in this country. We cannot get at the truth in this matter until more careful observations are made, not only in the hospitals, but in private practice as well.

Thyrotomy for Cancer of the Larynx, With Report of Eleven Cases.

By D. CROSBY GREENE, M. D., Boston, Mass.

In a paper presented to this association in 1906 we reported the results of an investigation of the lymphatic drainage of the larynx by means of submucous injections of methylen blue and mercury. The results obtained are confirmatory of those reported by others in showing that the network of lymphatic vessels which extends beneath the mucous membrane throughout the interior of the larynx is richer in the number and size of the vessels in the supraglottic region, relatively poorer in the subglottic portion, while on the vocal cords the vessels are very small and widely separated. These anatomic facts account for the slow growth and late development of the disease in the cervical lymph nodes in cases of epithelioma

of the cords, and furnish an argument for the possibility of cure in early cases by the operation of thyrotomy and excision of the growth with a wide margin of healthy tissue. This is supported by the result of the operation in the hands of numerous operators, both in this country and abroad, so that at the present time it is almost universally recognized as the proper procedure for the treatment of early intrinsic cancer of the larynx. Certain details of the technic have an important bearing on the immediate and after-results of the operation. The steps of the operation are: 1. Ether by inhalation, preceded an hour before by $\frac{1}{4}$ grain of morphin and $\frac{1}{150}$ grain of atropin. 2. With the head slightly extended a median incision is made, extending from the lower border of the hyoid bone to the lower border of the cricoid cartilage. This incision is carried down through the prethyroid muscles until the thyroid and cricoid cartilages and cricothyroid membrane have been definitely exposed. 3. A one per cent solution of cocain is injected through the cricothyroid membrane into the cavity of the larynx. 4. The patient is now placed in the Trendelenberg position and a thick pad placed under the shoulders to bring the larynx into prominence. 5. The cricothyroid membrane is next incised in the median line, and through this incision a swab of ten per cent solution of cocain is introduced and applied to the laryngeal mucous membrane. 6. The thyroid cartilage, after a pause of five minutes, is divided from below upwards. In young subjects this may be done with a knife, but in the majority of cases where the cartilage has become ossified, it is best to use strong curved scissors with dull points. 7. The thyroid wings are now widely retracted and an examination of the growth made under good illumination. 8. Beginning at the free margin of the thyroid cartilage, on the affected side in front of the growth, the internal perichondrium is elevated from off the cartilage with a sharp elevator from before backwards to a line well behind the limits of the growth as well as above and below it. All the soft structures are thus freed from the underlying cartilage. 9. Parallel horizontal incisions are now made with scissors above and below the growth. These incisions are carried about one-half inch back of the posterior limit of the growth. 10. The growth with its surrounding tissue is now entirely re-

moved with a wire snare by which the posterior attachments are severed. Much depends on the proper selection of cases. When the growth is so extensive, even though confined within the cavity of the larynx, that the larynx cannot be opened without cutting into the growth, recurrence is not only possible but probable.

TRI-STATE MEDICAL ASSOCIATION OF VIRGINIA AND THE CAROLINAS.

Dr. Joseph A. White, of Richmond, Va., at a meeting of the above Association, held at Norfolk, Va., February 19-21, 1913, read a paper* on—

Is the Present Immolation of the Tonsil Justifiable?

DISCUSSION.

Dr. A. Barnes Hooe, Washington, D. C., said:—"I do not wish to defend the rhinologists and laryngologists, because they have been tried today and found guilty. Those who leave in the tonsils are wrong, and those who take them out are worse. But I do think my friend is wrong who compares the gynecologist with rhinologists and laryngologists. He said that whenever anything was wrong with the women, gynecologists took their ovaries out, and when patients went to the throat specialists they kept on taking out until finally they found out what was wrong. They took out the tonsils first, then the adenoids, finally the turbinates. I do not think any man doing abdominal surgery today takes out an ovary when it is possible to save it." (Interrupted by Dr. White, who said he meant to say that gynecologists formerly did that class of work, but now were able to recognize and remove only diseased organs.)

"I am very glad, Mr. President, that the rhinologists admit that we have gotten so far ahead as to take the bad things out and leave the healthy things in, and I hope they will profit by the example set by the gynecologists."

Dr. Russell, Asheville, N. C.:—"This is an interesting subject, and it is one that is discussed every year at the American Medical Association. I agree exactly with these gentlemen preceding me,—that the question is to know when to remove tonsils. I hope they have not produced the impression upon this audience that a diseased tonsil, causing trouble, should

be left in place. It should be removed. I know only one condition in which it should be left—an atrophic rhinitis. There I think it best, possibly, not to remove the tonsil.

"Here is a girl 20 years old, who has enormous adenoids. Yes, she has a good voice because the post-nasal space is very large. I think the tissue should be removed only when it is diseased and causing trouble—and there the specialist comes in. But the case of adenoids that have been left in place, that have not caused trouble, might be this way: A case might have a smaller adenoid, and still fill up that post-nasal space, when there was not as much adenoid as in the other case.

"These men have said the right thing. If it is diseased and causing trouble, the tonsil should be removed. I have removed a good many and have never seen a case where I removed them that I did not think it did a wonderful amount of good. The general health improves; discharging ears, for weeks and years, when the tonsils are removed, are well in a short time."

Dr. F. A. Coward, Columbia, S. C.:—"It is with some hesitation that I arise to talk upon a subject upon which I am not supposed to be informed, not being a specialist, but some things have been said that, it seems to me, are a little off the line.

"One of the speakers has said the tonsil and the appendix are exactly the same tissue. That is true from the surgeon's standpoint; it is not from the patient's. To speak of a diseased tonsil (which one of the speakers did) as not being an enlarged tonsil, I would like to know the difference between an enlarged and a diseased tonsil; yet that surgeon would take out one and not the other. I believe the same evolution as came in other surgery is before us. It is going to lead us to the point which we have reached today in the treatment of infected and compound fractures, gangrene and other diseases, which I might mention. They used to cure those diseased limbs—compound fractures, etc.—(lots of you have Druitt's old surgery in your libraries today) and he gives you the reasons for cutting them off. That is the easiest way to get rid of it: Cut it out. I believe that is not the treatment, and I believe you have before you today a field for study in the treatment of those things. I do not wish to place my beliefs against those of men who have treated these

*For paper, see page 237.

cases, but I do say that I have never seen an adult patient of mine with the habit of sore throat cured by having tonsils removed. I believe, as one of the speakers has said, when you go to take out a tonsil, take it out. I think it is a major operation which should be done thoroughly.

"The point of Dr. Jervey and Dr. White as to the tonsil being a part of the lymphatic protection of the throat I think is the secret of the whole problem, although, on the other hand, those speakers claimed that they remove adenoids because they cause obstruction. I do not know a throat practitioner today who makes a practice of studying the degree of infection to which the tonsil has gone;—if the pediatric surgeon of today followed the throat surgeon, he would cure infantile diarrhœa by removing the mesenteric glands. Gentlemen, it is all wrong."

Dr. J. N. Upshur, Richmond, Va.:—"I did not hear the paper, but I caught a remark as I came into the room. I always enjoy seeing specialists jump on each other, because the indictment I have got to bring against them is that they are not broad enough. I do not mean to be offensive, but my observation is that there is a sort of a lop-sided cerebral condition to the average specialist. They cannot see anything except from their particular standpoint. I do not care what is the matter with a patient. You send a woman with a fibroid tumor of the uterus to a throat or eye man, he is going to look into the throat and he is going to look into the eye or somewhere, there to see what he can find. And this is illustrated by a case I heard of going to a throat specialist on one occasion. The specialist was showing the patient a little instrument that had a light on the end of it; it wouldn't injure her, he explained, but it would enable him to see so far down. When he got through looking at her throat her sister said, 'What is the matter? Did the doctor hurt you?' 'No,' she said, 'but he said he could see so far down, and I recollected I had a hole in my stocking.' All laughter aside, what we want in the specialist of the present day is to have such a knowledge of medicine that when patients come to him, whether they have anything in their special line or not, he can find out what they have got.

"I was much struck today by some remarks made by Dr. Driver as to recognition of things

outside of the eye, ear and throat. That is what we want: men broad enough, well enough educated that they may recognize what is the matter with people, even if it is not in the line of their work. There is too much cutting being done,—and I am an advocate of surgery and proper surgical operation when it is necessary, —but I do not believe that every man who wants to make big fees and a big reputation as a surgeon should operate. I want the man who operates on my patient to be big enough to say: 'This patient does not need operation. It is a case for medical treatment.'

"Now I want to say if there is one thing I have got a profound conviction upon it is, if I have a child, or a young adult who has eternally recurring sore-throat, and examination shows spongy or diseased tonsils or adenoids, the sooner they come out the better, and, in my experience, I have gotten rid of all trouble or acute sore throat with those patients. They don't have the trouble they have had before with tonsillitis, etc."

Dr. White, in closing, said:—"Mr. President, this discussion has gone a long way outside my paper. Dr. Upshur, for instance, has gone as far as he can get from it, but seems to agree exactly with my paper, although he did not hear a word of it.

"Now, answering the question, 'Have I ever seen a recurrence of adenoids following an operation where adenoids were removed and tonsils were not removed?' I say 'yes.' 'Have I seen a recurrence of adenoids where the tonsils were removed at the same time?' 'Yes.' And I invariably attributed that, in both instances, to bad work on my part and to bad work on the part of any man who has that recurrence. The adenoids will not recur if they are thoroughly and cleanly removed. Something is left either at some part of the vault or in Rosenmuller's fossa where it is very difficult to remove them absolutely; and in some exceptional cases it will recur from the remnant that is left, whether you remove the tonsil or leave it; so I answer yes, in both cases.

"In regard to Dr. Driver's remarks—advocating such radical extermination of the tonsil because it is the gateway of so much infection through the lymphatic system,—I wish to say that the tonsil is not a lymph gland. All of our most recent investigators have demonstrated satisfactorily to the mass of throat specialists

that the tonsil is a terminal of the lymph system. The glands of the throat are especially located in Waldeyer's ring, and the nasopharynx, and whatever infection occurs takes place there. We know that we find bacteria in the tonsil constantly in healthy throats where there is no disease of the tonsil. Now I do not wish to be understood to say that I do not want diseased tonsils removed. One gentleman asks—"How do you recognize a diseased tonsil?" I should say, 'one that gives trouble,' because a healthy one does not give trouble. Nearly all children under six or eight years of age have enlarged tonsils, and at that age the tonsil begins to shrink and disappear, and after that time the majority of people do not have enlarged tonsils. We cannot see it except by separating the pillars, and often we find no tonsillar tissue.

"The function of the tonsil is not clearly demonstrated, but that there is some important function for the tonsil, prior to six or eight years of age, is generally admitted, and they should not be removed unless diseased. Repeated attacks of tonsillitis, annoying cough, where there is nothing else to account for it, enlarged cervical glands associated with unhealthy tonsils, etc., are causes for their removal.

"I always remove adenoids. Why? Because they prevent free breathing, frequently cause deafness, and keep up catarrhal conditions, but it is only occasionally that enlarged tonsils produce these effects. I have operated on tonsils about three thousand times, and I think I have done a good many when I should not have done it."

Dr. Driver:—"Have you removed tonsils in young children?"

Dr. White:—"Yes."

Dr. Driver:—"Have you had any trouble from it?"

Dr. White:—"Yes. I used to remove all tonsils when I removed adenoids in young children, but I had at times adhesions about the pillars. When you have adhesions about the pillars, they sometimes cause just as much trouble afterwards as if the tonsil was there itself diseased—constant irritation about the throat. All of us practically have had that experience."

Dr. Dial:—"How early did you remove adenoids?"

Dr. White:—"Babies three months old and people up to fifty years."

Dr. Dial:—"Did you have trouble along the line you emphasized a moment ago, that the tonsil has a function which would be interfered with if taken out prior to a certain age?"

Dr. White:—"I cannot say, as we do not know that function. The tonsil would not be in the throat—Providence would not have put it there without a function.

"I simply want to add that infection from the tonsil has been, to some extent, demonstrated, but it is no reason to conclude that everything we have in the way of infection comes from the tonsil. We do know the connection between the tonsil and the cervical glands. If cervical adenitis does not give way to ordinary treatment, remove the tonsils. I have already stated that repeated attacks of tonsillitis, sore throat, and so on, would be a reason, but I do not consider a suppurating ear a cause for removing tonsils. I have seen a suppurating ear caused by adenoids, but never yet have I seen one that I was satisfied had been caused by tonsil trouble in the absence of adenoids.

"Now there have been many things that I have not seen in my profession, and many things that I have to see yet. Every week I see something that I never saw before; therefore, I may come across a case of that kind. I have never seen deafness produced by enlarged tonsils without adenoids, and I do not see how it could do it. I have seen papers on the subject, but I have never been convinced never having had the experience and, therefore, do not believe it. Dr. Weeks reported a case today where an ovarian trouble was traceable to accessory sinus disease and, therefore, I may have an otorrhoea traceable to the tonsil."

Dr. Miller:—"In your previous remarks you spoke of the treatment of the throat with caustics or astringent preparations. Now I would like to have your opinion about that. We generally treat these throat troubles before sending them to a specialist, and my experience has been upon this line of treatment. What do you think is the best application to the throat before sending to the specialist? You spoke of caustics."

Dr. White:—"That was the use of the galvanic cautery. I meant shrinkage.

"Some gentleman mentioned I drew some conclusions between the appendix and the ton-

sil tissues: I do not recall that. I simply referred to the tendency to operating upon both without proper restrictions."

Correspondence.

The Virginia Dental Law and Fair Play.

Richmond, Va.

In a recent issue of the *Semi-Monthly*, in an article on "Virginia's Dental Law," your correspondent from Cripple Creek, Virginia, unfortunately falls into the same class in which he places the Virginia Legislature. He is well-meaning in wishing to help correct a mistake in legislation, but unthinking in his definition of dentistry and medicine.

He says, "The one is a mechanical art; the other is a science and art." Just such expressions as this from certain members of the medical profession caused the agitation of this subject and the passage of this law that we think objectionable. The Legislature realized the injustice of such views and tried to correct the situation.

Fortunately most of the medical men who are at all familiar with the work being done by the dental profession are giving us proper and just recognition, and we can well afford to ignore and leave those who wish to class us as simply mechanics happy in their imaginary wisdom.

Dentistry is very much more than a mechanical art and the profession justly asks and expects a fairer recognition from all well informed people.

Anæsthesia was discovered by a dentist more than fifty years ago, and men who wished to practice dentistry in Virginia have for a long time been required to pass examinations on anatomy, physiology, chemistry, materia medica, histology and pathology, besides other scientific branches.

Quite a number of our profession see more evil in the effects of the law that is to become operative in 1914 than most any one else, and are possibly more anxious to have it changed than anyone outside of the profession.

Your correspondent is not familiar with the provisions of the new law. Hereafter there is to be no D. D. S. degree, but all must take the M. D. degree, and the practical work for those who wish to practice dentistry will be gotten be-

tween sessions. Such requirements will practically shut out all young men from the small towns and country districts, and limit the supply of dental students to the large town or to those who can afford to take a B. A. degree in a literary college and then take the long medical course.

This in turn will supply a class of men who will not be willing to practice in small places, making it necessary for country people to go to the larger towns for their work and necessarily pay board and a larger fee.

By calling attention of the people to these facts, the medical men can aid us very materially in putting a bill through which will be introduced in the next Legislature. It would be well to see your representatives in the Legislature, and ask your local paper to publish these facts for the benefit of the public.

We would like to have a law practically as it stands now with an added clause prohibiting any person from practicing under any other name than his or her own, thus prohibiting those who establish an undesirable reputation from opening up under some fancy name for the purpose of deceiving the public.

The law which goes into effect next January will give us brains over-stuffed with a lot of useless medical knowledge and hands not skilled in the practice of dentistry.

Give the dental profession fair play and give the State fair laws.

URIAH HARMAN, D. D. S.

109 East Franklin Street.

Editorial.

Public Health and Maternity.

The average person is perhaps not disinclined to view life and death as a rather personal matter involving primarily the person who lives or who dies. At least, the average person certainly overlooks the point that, in general, to protect the life of a given individual is an act of kindness not only toward that individual and his descendants, but also toward the person to whom the individual saved owes his life originally. Accordingly, in public health work one frequently meets with the attitude that the prevention of disease is a precaution directed primarily toward the benefit of the person protected.

That this feeling is not without a certain amount of foundation, will not be argued here, but attention is invited to a phase of the subject which seems rarely to occur either to public health workers or to persons for whom they try to procure protection, and the point is submitted that a lack of proper public health protection is of greater injustice to the mothers of the country than to any one other class of people, because (1) they suffer individually from unnecessary disease they contract; (2) their efforts to keep up the population are inhibited to a greater or less degree by the unnecessary sickness and death of their offspring; and (3) it is chiefly upon the mothers that the care of sickness falls.

It has been estimated that about 620,000 persons in this country perish per year from preventable or postponable causes. This means that the maternity efforts of approximately 620,000 mothers are rendered more or less useless—according to the age at which their offspring die. More in detail, this estimate means for the mothers approximately the following:

First.—These 620,000 mothers of the 620,000 annual American human sacrifices have needlessly, or in part needlessly, passed through 620,000 times 9 months=5,580,000 months=465,000 years of pregnancy. Think of this annual inconvenience and suffering on the part of American mothers, due directly and specifically to the fact that the average American father has so little interest in seeing that we have properly enforced public health laws.

Second.—This means that 620,000 mothers have needlessly, or in part needlessly, faced the dangers and passed through the agonies of child birth. This paragraph is respectfully referred to the Carnegie Hero Board.

Third.—This means that these mothers have spent, following child birth, about 620,000 times 10 days=6,200,000 days=16,986 years in bed, more or less needlessly, because their offspring died sooner or later from preventable or postponable causes. Respectfully referred to political economists to estimate the money loss.

Fourth.—Since it takes between 1 and 2 years for a woman fully to recover her strength after child birth, this means that the mothers have spent 620,000 to 1,240,000 years in invalidism or partial invalidism needlessly, or in

part needlessly, because American men have not exhibited for American women the same regard, as to health protection, that is accorded to women in certain countries in Europe. This paragraph is respectfully referred to Fourth of July orators on American patriotism.

Fifth.—This means that these 620,000 mothers needlessly, or in part needlessly, have had broken sleep and rest for many months during the nursing period of their children. Respectfully referred to the fathers after a few nights of the toothache.

Sixth.—This means that 620,000 mothers have needlessly or in part needlessly passed through the cares and inconveniences of the "diaper period"—for details as to this matter, American fathers are respectfully referred to American mothers.

The question as to whether American mothers would be justified in going on a "strike" is respectfully referred to the newly created Department of Labor.

The question as to how much respect is due to the average American voter, judged from the standpoint of local public health laws and their enforcement, is referred to the voters themselves.

CH. WARDELL STILES,

Professor of Zoology,

U. S. Public Health Service.

The Augusta County (Va.) Medical Association

Held its annual meeting in Staunton, August 6, Dr. F. M. Hanger presiding. Papers were read by Drs. G. R. Fisher, of New Hope, and M. J. Payne, of Staunton, and Dr. J. F. Armentrout showed X-ray plates. Drs. Spencer and Phelps were in charge of the clinics. Dr. T. M. Parkins, Staunton, was elected president, and Drs. H. B. Spencer, Staunton, G. R. Fisher, New Hope, and J. F. Armentrout, Staunton, vice-presidents. Dr. R. S. Griffith, of Basic City, was also nominated for president, but declined, as he had served in this office several years ago. He and Dr. Kenneth Bradford, Staunton, were unanimously re-elected treasurer and secretary, respectively. Drs. A. L. Tynes, H. H. Welland, and R. S. Griffith were elected trustees, and Drs. W. F. Hartman, M. P. Jones, and R. J. Bell, censors.

Upon adjournment of the meeting, all members and visitors of the Association were enter-

tained at an elegant supper, by the retiring president, Dr. Hanger. The next meeting will be held the 5th of November.

The Virginia State Board of Health,

Which, in accordance with its custom, concluded its meeting held in Richmond at Catwba Sanatorium, July 16, re-elected its former officers for another term, as follows:—President, Dr. Wm. M. Smith, Alexandria; vice-president, Dr. S. W. Hobson, Newport News, and secretary, Dr. J. B. Fisher, Midlothian.

The Southside Virginia Medical Association,

Of which Dr. Bernard Barrow, of Barrows Store, is president, and Dr. E. F. Reese, of Courtland, secretary, will hold its next quarterly meeting in Suffolk, September 9.

Tulane College of Medicine,

Is the name by which the Medical Department of Tulane University, New Orleans, is hereafter to be known. The medical department was reorganized this summer to consist of four schools with separate deans and staffs. These divisions will be the Schools of Medicine and Pharmacy, Post-Graduate School, School of Hygiene and Tropical Medicine, and School of Dentistry.

The Piedmont (Va.) Medical Society,

Recently meeting at Fredericksburg, elected Dr. Harry Baptist, of Ivy Depot, president, Drs. E. M. Magruder, of Charlottesville, vice-president, Dr. F. G. Scott, Jr., of Orange, secretary, and Dr. J. T. Walker, of Barboursville treasurer. The next meeting of the Society will be at Orange C. H., October 18.

Dr. W. A. Shepherd,

And family, of this city, leave the first of September to spend two weeks at Elkton, Va.

The Old Dominion Medical and Surgical Society,

Composed of a large number of the colored doctors of Virginia, held their fifth annual session in Petersburg, August 12, with a large attendance, Dr. C. R. Alexander, of Petersburg, presiding. Officers elected for the ensuing year are as follows:—President, Dr. Thos. J. Fawcett, Lynchburg; secretary, Dr. W. A. Crowder,

Petersburg; corresponding secretary, Dr. H. L. Harris, Richmond, and treasurer, Dr. R. E. Jones, Richmond.

International Congress on School Hygiene.

The program of this Congress, to be held at Buffalo, N. Y., August 25-30, shows that there will be over 300 speakers, including leading educators, physicians, and civic welfare workers known the world over, and the social side has not been neglected in arranging the program, there being some pleasant entertainment or diversion planned for each day. The meetings will be open to any one interested in improving the health and efficiency of school children.

Dr. Joseph A. White,

Of Richmond, left August 17, to spend a two weeks' vacation at White Sulphur Springs, W. Va.

Dr. Anne Humphreys,

Formerly of Norfolk, Va., and more recently connected with the faculty of the Fredericksburg State Normal School, will sail from San Francisco, September 11, for China, where she goes to become a medical missionary, and expects to remain for the next seven years.

Another Honor for Mellin's Food.

Mellin's Food was awarded a gold medal at The International Medical Congress at its meeting in London, August 6-12.

Americans Large Meat Eaters.

According to statistics collected by the Department of Agriculture, Washington, the Americans are shown to be the greatest meat eaters in the world, the German and French people taking second and third places, respectively.

Dr. J. S. Haile,

Who was recently appointed postmaster at Chatham, Va., and received his commission early in August, was expected to enter upon his duties about the middle of the month.

The International Medical Congress,

Which held its seventeenth session in London, August 6-12, was possibly the largest medical gathering ever held, there being over 7,000 medical men in attendance from all quarters of the world. The United States ranked second to Great Britain in attendance, and there were

more than 100 American doctors on the program. The meeting, which was opened by Prince Arthur of Connaught, was held in twenty-three sections.

West Virginia State Board of Health.

At a recent meeting of the Board in Charleston, Dr. W. W. Golden, of Elkins, was elected president, and Dr. S. L. Jepson, of Wheeling, was appointed secretary.

Dr. James H. Smith,

Richmond, Va., announces the removal of his offices to 8 West Franklin Street.

Dr. A. R. Shands,

Of Washington, D. C., and his sons, after motoring in Virginia, early in August, went to their country home on James River to finish out their vacation.

North Carolina State Board of Health.

Attention has been called to an error in our issue for July 11; when names of officers of the above Board were incorrectly stated. Dr. J. Howell Way, Waynesville, was, in 1911, elected president for a term of six years, and Dr. W. S. Rankin, Raleigh, was elected secretary for a similar term.

Dr. C. S. Dodd,

Of Petersburg, Va., is in New York for a short time, doing special work in eye, ear, nose and throat diseases.

Dr. McGuire Newton,

Of this city, was a few days ago presented with a handsome 1914 model of Oakland automobile, by a number of friends, in token of their appreciation of his work done at the Baby Hospital at Lakeside, near the city.

Dr. W. S. Rankin,

Secretary of the State Board of Health of North Carolina, was among the speakers at the Carolina Municipal League in Wilmington, on the 15th, and urged upon the Mayors the necessity of having strict health laws, and the enforcement of them as well as the war on the fly.

New Record Made in Virginia's Hookworm Dispensaries.

The work done in the hookworm dispensaries in Virginia this season excels that of any previous year. The inspectors, Drs. Brumfield, K. E. Miller and Kolmer, have worked in Ap-

pomattox, Hanover, Prince Edward, Wise, Lee and Surry Counties, and great interest has been shown in the work at all places. Possibly the best record made in any one day was that in Lee County, when more than 800 persons were examined in one day's time.

Unusual Cause of Typhoid Outbreak.

Public Health Reports states the occurrence of an outbreak of typhoid fever in an orphanage in St. Louis, in which, from June 30 to July 31, there were 45 cases of typhoid fever with six deaths, among the 295 inmates and employees. In seeking a cause for the outbreak, after water and milk had been eliminated as possible causes, a 13 year old girl employed in the kitchen, who had had three attacks of typhoid, was found, upon bacteriological examination, to be a typhoid-bacillus carrier. Her last attack had occurred eighteen months prior to the time of the outbreak.

Americans Honored.

Drs. Wm. J. Mayo, Rochester, Minn., Harvey Cushing, Boston, and Geo. W. Crile, Cleveland, were among the Americans elected to honorary fellowship in the Royal College of Surgeons of London, this summer.

Dr. H. T. Hawkins,

A graduate of the Medical College of Virginia in 1912, and who has since served as an interne at the City Hospital, Richmond, has located in Danville, Va., to practice his profession.

J. B. Anderson, M. R. C., U. S. A.,

Has been ordered to active duty, and has been sent to Ft. Monroe, Va.

Number of Medical Schools and Students on Decrease.

The West Virginia Medical Journal states that the total of 166 medical schools of all kinds existing in the United States and Canada in June, 1904, had decreased to 117 in 1912, and the student enrollment fell in the same time from 28,142 to 18,412.

Smallpox and Typhoid in Evansville, Ind.

This city of about 70,000 population, has had a rather unenviable record with smallpox and typhoid fever, there having been reported to August 9, a total of 851 cases of smallpox since October 1, 1912, and 189 cases of typhoid fever since June 14, 1913.

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MEDICINE IN COLONIAL VIRGINIA.

By BENJAMIN EARL WASHBURN, M. A., M. D.,
Hookworm Commission, North Carolina State
Board of Health, Raleigh, N. C.

Medicine, being the healing art and in its simplest form implying the practice of methods to alleviate pain and to heal mechanical injuries, was, at first, of necessity, empiric and instinctive, and it required centuries for the evolution of the great principles of treatment. Like other branches of philosophy, it began with an age of wonder. Disease and death aroused and stimulated surprise. The causes of these and other phenomena of life were investigated then as they are now. Mysteries were everywhere present without discernible causes, and impelled man to people heaven and earth with Powers responsible for good and for evil. These were to be propitiated by sacrifices or calmed by prayers. Disease was regarded as a manifestation of such powers, and the cure of pain was sought in prayers and offerings—at first to the unseen powers, and later to God as the giver of all good gifts. In this way medicine became associated with religion, and the priests and ministers of the church were the healers and physicians of the people.

A change came with advancing enlightenment, and medicine became associated with education—an association which will be enlarged until hygiene and the prevention of disease will become a part of our general educational curriculum.

Medicine has come far—in achievements and in time. It was during the latter part of the sixteenth century that it became sufficiently individualized to be classed as a distinct science and its different branches to be studied apart

from other departments of philosophy. This achievement lies in the colonial period of Virginia, 1607-1783. The early physicians of the colony were associated with the church, but in the latter years of this period the practice of medicine had become a separate profession.

The doctor in the Colony of Virginia was not greatly different from the doctor in England. The same medical doctrines prevailed in the two countries, and the practice was essentially the same in both. During the 17th and 18th centuries European medicine was ruled by theory, empiricism, and authority. At the beginning of this period many practitioners still held to the old doctrine of Hippocrates, that disease was due to humours,—that there were four primary qualities: dry, moist, hot, cold; and four cardinal humours: blood, phlegm, black bile, and yellow bile. "Man," says Hippocrates, "enjoys health when each humour is in due proportion of quantity and force, but especially when properly commingled." Disease takes place if any humour is deficient or excessive.

During the 18th century new theories were advanced regarding the causation and nature of disease. The four men who had the greatest influence upon the medical thought and practice of this century, named in the order of the domination of their views regarding medicine, were Boerhaave, Cullen, Brown, and Hahnemann.

Hermann Boerhaave (1668-1738), a Dutch physician, advanced a system of medicine in which great importance was given to the fluids of the body in the production of diseases. These fluids, according to him, were variously changed. They became morbidly thick or thin, and were contaminated by acid and alkaline acrimonies and various other morbid matters. Disease was attributed to such conditions of the fluids, and medicines were supposed to act by counteracting and changing them. In managing dis-

cases, medicines were given with the view of thinning the blood and altering its qualities. Much confidence was placed in the power of nature, and the results of "critical days" were watched with much anxiety. The *materies morbi* were supposed to be discharged on these days and the patient in this way relieved.

William Cullen (1710-1790), of Scotland, founded his pathology and treatment of diseases on pure theory. He recognized this fact, and defended it. In his opinion it was the duty of the physician to control his observations by his theories and not his theories by his observations. In like manner the practitioner should be guided at the bedside, less by the indications of nature than by theoretical considerations. Strange as it may seem at this day, these views met with general acceptance in England and exerted a great influence upon medical opinion and practice in the colonies.

John Brown (1735-1788), also of Scotland, brought forward the theory that all diseases could be divided into two groups, the one caused by excess of excitement—the sthenic—and the other by a deficiency—the asthenic—each having its appropriate treatment, the one by depletion, the other by stimulation.

In the latter part of the 18th century, Christian Samuel Friedrich Hahnemann (1755-1843), a German, expressed his views as follows: "The only vocation of the physician is to heal; theoretical knowledge is of no use. In case of sickness, he should only know what is curable and the remedies. Of the diseases he cannot know anything except the symptoms. There are internal changes, but it is impossible to learn what they are; symptoms alone are accessible; with their removal by remedies, the disease is removed."

From these theories it may be seen that "the spirit of Science was brooding on the waters." But theories controlled practice. The vast majority of practitioners were slaves of a routine which authority had established and were guided solely by empiricism. In contrast to these were a few great minds who busied themselves with the accumulation of facts and based their treatment of disease on personal observation and experience. Several men of this type lived in Virginia, and it is with these that we are mainly concerned.

There were four classes of physicians in Colonial Virginia: The medical clergy; the few

who had pursued their medical studies in Great Britain or on the continent of Europe; the large number who had studied under colonial physicians as pupils or apprentices; and those who made use of the early schools in this country.

The history of the progress of medicine in Virginia is essentially the history of the men who practiced medicine. The earliest Virginia doctors belonged to the class of physicians educated in England or in Europe. Their education was the best that was afforded in the schools of that day. The first colonists who came to Virginia were sent out under the auspices of either the English government or the great commercial companies of London. It was to the great advantage of the government and these companies that every inducement be given to the emigrants to America. For this reason the best trained medical men of the mother country were secured to go to Virginia.

Virginia medicine had its beginning when Thomas Wotten came out as physician to the Colony with the expedition which sailed from England and landed at Jamestown in 1607. In the same company were William Wilkerson and Post Ginnet, "chirurgeons," and Thomas Field and John Harford, apothecaries. Very little is known of the methods employed by Wotten and his associates while in Virginia. His stay in the new colony must have been short, however, since the archives of the Jamestown Colony contain but little in regard to him, and his successor was appointed by the London Company in 1610.

In 1608, Dr. Walter Russell is mentioned as being with Captain John Smith and rendering him professional services during the survey of the Chesapeake Bay and the Potomac River.

Anthony Bagnall, in 1608, was surgeon for the fort and settlers at Jamestown. During one of his visits to a patient, he was shot at by an Indian, the arrow passing through his hat.

It is presumed that these physicians, being unaccustomed to the wild life of the early colonists, and their practice attended by more danger to themselves than benefit to their patients, returned to England. In 1609 Captain Smith went to England for surgical treatment, "for there was neither chirurgeon or chirurgery at the Fort."

The first Physician-General to the Colony of Virginia, appointed by the London Company, was Dr. Lawrence Bohune. Dr. Bohune was a shareholder in the London Company, and after

his arrival in Virginia was a member of the General Court which met on January 26, 1619, and on February 2, 1620. Dr. Bohune came over from England in 1610. The colonists were as yet unacclimated, there was much sickness, and the physician was kept busy administering to the invalids of the settlement. He returned to England several times during the succeeding ten years to obtain medicines and supplies for the colonists and to present before the English government and the London Company plans by which conditions in Virginia could be bettered. He was very influential among the settlers and took a prominent part in the affairs of the colony. Appreciation of his services is shown by the following order of the General Court, of December 13, 1621:

"Mr. Doctor Bohune havinge desired yt hee might be a Physition generall for the Company according to such conditions as were formerly set downe by way of Articles unto which place they had allotted five hundred acres of land and twenty Tenants to be placed thereupon att the companies charge, The Court was please to accept of his humble sute for that place and employment and therefore ordered that he should have tenn men provided forthwith to go now with him and tenn more should be sent in this next springe wch. should be transported att the companies charge and furnished as other of the Tennants be, provided that xxtie Tennants being thereon established and made good for one whole year after there Landinge, the said Doctor Bohune do after if any of them die covenant to supply and mayntane from time to time upon the said land; and att his disease or other surrender of said place, leave the like number of men and stocke and cattle as are by order of Courte to the saide office allowed and apoynted."

He was not long spared to enjoy these benefits and honors. Early the next year he embarked with Lord Delaware, who was ill, for the West Indies, and was killed in a naval engagement with a Spanish war vessel. The high courage and valor exhibited by Dr. Bohune and his undaunted zeal in making life more acceptable in the first Virginia colony makes him a worthy predecessor to the long line of able men who have honored American medicine.

On June 13, 1621, the General Court ordered that John Pott be named as the successor to Dr. Bohune in the Council. Dr. Pott was al-

ready in Jamestown, having landed in 1620. In 1624, he also became Physician-General, and in 1628 was made temporary Governor. In a little more than a year he was succeeded as chief executive by Sir John Harvey. Dr. Pott's enemies immediately charged him with having pardoned and restored the privileges to a condemned murderer, and with holding cattle not his own. Harvey placed him under arrest and confiscated his property. At the General Court of July 9, 1630, the Doctor declared the evidence false and hypocritical, but the jury found against him. In 1631 he was pardoned by the King for the reason that he was "the only physician in the Colony."

After his pardon by the King, Dr. Pott devoted his time to his profession. He later settled in Williamsburg and died some time after 1651—since at this time his son John, styled Jr., signed the test of fealty to the Commonwealth as a citizen from Northampton county.

An insight into the personal character of Dr. Pott is given in a letter written by George Sandys, translator of Ovid's *Metamorphoses*, dated April 9, 1623:

"I have given from time to time the best council I am able, at first he kept company too much with his inferiors, who hung upon him, while his good liquer lasted. After he consorted with ———, a man of no good example, with whom he is gone into Kicotan (Hamp-ton)."

Other physicians of the early settlements in Virginia are Chirurgion John Brock (1640), and Drs. Danel Park, Robert Ellison, Francis Haddon, and Patrick Napier. A Dr. Green practiced in Gloucester County, and died in 1676 in the same house where Nathaniel Bacon, of Bacon's Rebellion, breathed his last.

Dr. John Mitchell, one of the most eminent physicians of that day, was born in London and emigrated to Virginia about the year 1700 and settled at Urbanna, on the Rappahannock river. He was distinguished for his attainments in both medicine and natural history, and gained considerable reputation by his researches in botany. His writings in the latter science were collected and published in 1769 in the *Transactions of the Royal Society*, of which he was made a member in 1718. The chief productions by which his name has been handed down to posterity are, "An Essay on the Causes of the Different Colors of People in Different Cli-

mates" and "An Account of the Yellow Fever Which Prevailed in Virginia in 1737, 1741, and 1742."

The first of these treatises is a production of no ordinary character, for the conclusions reached by the author are accepted in substance at the present time. His paper was published in the *Philosophical Transactions* of 1743. The author proves that there is a difference in the texture of the skin in different races, and proceeds to show that the different colors of the human race can be readily explained by the effect of climate and mode of life. He supports the scriptural doctrine of the common origin of man, and thinks the primitive color was a medium between white and black, "from which primitive color the Europeans degenerated as much on the one hand as the Africans did on the other; the Asiatics, unless, perhaps, where mixed with the whiter Europeans, with most of the Americans, retaining the primitive and original complexion."

His paper on the yellow fever gives an account of the epidemic which prevailed in Virginia in 1737 to 1742. This article was not published at the time it was written, but the manuscript was found and given to the world by Dr. Franklin. In the treatment of fevers at that time sudorific medicines were principally resorted to, and to facilitate the elimination of morbid matter—the supposed cause of the disease—patients were confined in their beds, cool air denied them, and bleeding resorted to. Dr. Mitchell did not approve of this treatment, and in discussing the effects of bleeding in warding off local inflammation, he says, "Plentiful bleeding is a means commonly found most effectual to obtain this end, in the benign inflammatory fevers; but we cannot apply this most effectual remedy in this disease, because it evacuates only or chiefly the red globules of the blood, which, as we see by its state taken notice of above, are in too small a proportion already; and bleeding further breaks the texture of the blood, which above all things is to be avoided in this disease; for after plentiful bleeding, the pulse sinks, or at least is so slow and feeble about the state of the disease as to prove of dangerous consequence; which some instances I have known seem to confirm." The remedies which he advocated in the treatment of yellow fever were sudorifics, but more especially cathartics. Upon the importance of this latter class of remedies he spoke

with much emphasis, and to him belongs the credit of the free use of purgatives used with so much benefit in yellow fever in later years.

Besides the works already mentioned, Mitchell wrote tracts and dissertations upon various subjects. Among these may be mentioned "A Map of the British and French Dominions in North America" (London, 1755), which is said to "mark an era in the geography" of North America, and was often quoted in boundary negotiations; "The Contest in America Between Great Britain and France, by an Impartial Hand" (London, 1757); and "The Present State of Great Britain and North America."

Another learned man and distinguished member of the medical profession was Dr. John Clayton. He was born in England in 1693 and came to Virginia in 1705, his father being Attorney-General of the Colony at that time. He studied medicine, botany, and chemistry. Through his father's influence Clayton was appointed Secretary of Gloucester County, and held the office for many years. His position allowed him leisure to study, and he became particularly eminent as a botanist. He devoted a long life to the investigation of the plants of Virginia. In 1743 he published a *Flora Virginica*, which was afterwards republished by the great botanist Gronovius at Leyden, in 1762. Gronovius, in his honor, affixed the name of Clayton to a genus of perennial plants, popularly known in America as "spring beauty." Clayton published in the *Philosophical Transactions* several papers relating to the cultivation of the different varieties of tobacco, and gave a full account of the medicinal plants of Virginia. Jefferson, in his "Notes on Virginia," left the following testimony to the character of this eminent naturalist and physician: "This accurate observer * * * passed a long life in exploring and describing its (Virginia's) plants, and is supposed to have enlarged the botanical catalogue as much as almost any man who has lived."

Dr. John Tennant, a native of Spotsylvania County, one of the most prominent physicians of his day, commenced the practice of medicine about 1725, and made a visit to England in 1735. He there made the friendship of such distinguished physicians as Mead and Monro. These gentlemen gave him the following credentials for a doctor's degree at Edinburgh,

though he does not appear to have received the degree:

"We whose names are underwritten do testify, That having examined and conversed with Mr. John Tennant, and having enquired into his Character, of which he has good Testimonials from Virginia, where he has lived and practised Physick for about Ten Years; We do find him well qualified for the Degree of a Doctor in Physick, and do therefore recommend him to the Professors of the University of Edinburgh, that he may be admitted to that Degree.

THO. PELLET, *Praese.*

R. MEAD.

J.A. MONRO."

In 1736 he published what was probably the first work on medicine printed in Virginia. The *Virginia Gazette*, September 3-10, 1736, contains the following advertisement:

"JUST PUBLISHED.

An Essay on the Pleurisy, by John Tennant. *Williamsburg*: Printed and sold by William Parks. Price 1s. 10d. 1/2."

In October, 1736, he wrote the first account of the valuable drug polygala seneka (rattlesnake root), and gave an account of his using it with great success in cases of gout, pleurisy, and pneumonia.

In the *Virginia Gazette* of January 30, 1738, appears a lengthy advertisement by John Tennant, giving proposals for publishing by subscription "A Treatise on the Diseases of Virginia and the Neighboring Colonies." This work, which would have been of great interest, was never printed.

Tennant seems to have had many enemies in Virginia and encountered much opposition, probably among other physicians. Dr. John Tennant, of Port Royal, Caroline County, a distinguished physician during the Revolution, was probably his son.

Dr. William Cabell, grandfather of Joseph Carrington Cabell, of Warmister, who, after Jefferson, had more than any other person to do with the founding and successful inauguration of the University of Virginia, was a native of Great Britain, and was educated in the medical schools of that country. He came to Virginia about 1724 and settled at Liberty Hall, on the James River, in what is now Nelson County. He was a man of great enterprise and wealth and attained to much prominence in his profession.

One of the most widely known American physicians was Dr. James Craik, Washington's personal friend and physician. He was born and educated in Scotland, came to America with Braddock's army, and served as a surgeon through the French, Indian, and Revolutionary wars. At the close of the last war, he settled at Mount Vernon. Until General Washington's death, Dr. Craik remained his physician, and was referred to in Washington's will as "my old and intimate friend." He died February 6, 1814.

Dr. William Baynham, himself the son of a physician, Dr. John Baynham, was born in 1749, and lived in Essex County. He acquired great distinction as a surgeon. After studying with his father, he went to London and was associated with the great Hunter. He was particularly skilled in anatomy, and while in London made some very delicate dissections, which are still among the specimens at St. Thomas's Hospital. He was, undoubtedly, the most celebrated surgeon of his time in America, and was consulted by many patients from a distance, and frequently made long journeys to perform surgical operations. In 1790, he operated successfully on two cases of extra-uterine pregnancy. He died in 1814.

Dr. James McClurg was a native of Virginia and served as a surgeon, and part of the time as medical director, during the Revolution. He commenced the practice of medicine in Williamsburg in 1773, and for nearly fifty years was at the head of his profession in Virginia.

Among the many physicians and surgeons of Virginia who lived about the time of the Revolutionary War, many of whom became surgeons in the American army, may be named James Carter, the physician at William and Mary College during an epidemic of small-pox in 1765; Dr. John M. Galt, the first physician of the State Insane Asylum, established in Williamsburg, in 1773; and Drs. William Carter, Walter Jones, William Graham, David Gould, Theodoric Bland, Robert Maury, John Roberts, Hugh Mercer, William Foushee, George Yates, Thomas Chrystie, Cornelius Baldwin, Corbin Griffin, and Alexander Skinner.

The records of the progress of medicine in Colonial Virginia show many examples of brilliant and scholarly men like those we have just considered; but they were a small part of the whole body of practitioners. While it is true

that many first-class physicians came to the colony with the early settlers, and that men educated in the best medical schools of Europe were found in Virginia at intervals throughout the colonial period, the larger number of people had to be ministered to by physicians whose training and experience were received in America. Medicine can flourish only in populous districts, and the wilds of America, no matter how great the advantages of freedom and personal liberty, had little attraction for the medical men of Europe. The inducements attending an emigration were too distant and precarious to warrant such a venture; and during the colonial period, with few exceptions, only those who had been unsuccessful at home would venture on so uncertain an experiment. The doctors trained at home in Virginia were poorly qualified to practice, as the facilities for the proper study of medicine could not be found in any of the colonies. There were neither lectures nor hospitals, and the great expense attending a foreign education made such a course impossible except to a very limited number; and so it was not to be expected that the medical profession in general would be at all distinguished for character or knowledge. Ill-training and superstitions regarding diseases (relics of the time when medicine was associated with religion) gave rise to many quacks. There was no protection against malpractice, and any one who saw fit to set up as a physician or apothecary could do so. This class became so numerous that stringent regulating laws had to be passed.

After the physicians sent out by the English government and the London Company, the earliest practitioners in Virginia were of the clergy, and, in many instances, during the colonial period, the functions of physician and divine were performed by the same person. Considering the condition of the colony, this combination of professions was not an unnatural one. Physical and moral evil are closely associated, and those administering relief to one cannot disregard the other. The ministers of the period were the most highly educated class of citizens, and they, seeing the need of medical advisers, instructed themselves in the more common therapeutic measures of the time; indeed, several instances are recorded where ministers, preparing to come to the New World, pursued medical studies along with theological courses while

still in Europe. And besides this, the character of the first emigrants and the high tone of religious feeling which drove many of them to the western world, continued for many years to give a preponderating influence to the clergy in all secular as well as religious affairs of the colony. Then, too, a knowledge of medicine greatly assisted the clergyman in his own profession.

The majority of the medical practitioners of Virginia belonged to the class who received their education at home. Until a few years preceding the Revolution, American medical students derived their professional training, not from schools and universities—for there were none—but from practitioners of greater or less renown, to whom they became apprentices. By this arrangement the student had the use of his master's library and of such specimens as the doctor had collected during his practice. These latter consisted usually of a skeleton, limbs removed at amputations, and perhaps a few of the internal organs. These, the student handled, examined, and studied. His opportunities for obtaining clinical experience consisted in witnessing and often assisting in the office practice of his master. There he learned the various manipulations of minor surgery and medicine, and there he pulled his first tooth, opened his first abscess, performed his first venesection, applied his first blister, and administered his first emetic. It was a great day for the student when he enjoyed the privilege of dissecting an arm or leg removed by an amputation, or became the assistant in some case of major surgery, such as abdominal operations, which were rarely performed at that day. After a time his clinical opportunities were enlarged by going with his teacher to visit patients and by observation becoming acquainted with the symptoms and manifestations of diseases. His clinical lectures were his master's talks on the cases they visited. In return for these privileges granted during his term as apprentice, the student became the physician's servant and general assistant. He ground the powders, mixed the pills, rode with the doctor on his rounds, held the basin when the patient was bled, helped to adjust plasters and to sew wounds, ran errands for his master, and in leisure time swept out the office, cleaned the bottles and jars, and tended the night bell. After three years spent in this sort of study and practice the young man was supposed to have acquired enough medical knowledge to enable

him to commence the practice of his profession.

When his apprenticeship was ended the doctor began to practice—usually in his native town—and as the years went by grew in popularity and wealth. From his travels about the country he became acquainted with and took interest in the families of all his patients, and soon became the favorite for miles around. He knew the names and personal history of the occupants of every house he passed, having been present at every birth and attended every funeral.

Drug stores were unknown at that day, and the physician was compelled to combine the duties both of the doctor and of the apothecary. He powdered his own drugs, prepared his own tinctures and extracts, and put up his own prescriptions. His saddle-bags contained medicines which have now gone out of fashion, or at most are but rarely used. Remedies now in the medicine box of every family were then unknown. The practitioner, having but little knowledge of physiology and hygienic principles, resorted to the use of drugs for every ailment, and "it is not too much to say that more medicine was then taken every year by the well than is now taken in the same space of time by the sick." Each spring the blood had to be purified, the bowels must be purged, the kidneys must be excited, the bile must be moved, and large doses of senna and manna, and nauseous concoctions of rhubarb and honey or molasses, were taken daily. Water was denied patients tormented with fever and small quantities of clam-juice given in its stead. Mercurial compounds were given freely and salivation was a frequent occurrence. Profuse bleeding was done in the majority of cases, and particularly in pleurisy, pneumonia, rheumatism. Blisters were also applied, and cupping and leeching freely prescribed. Quinine was unknown, and malarial diseases were treated with powdered cinchona bark. Inoculation was used as a preventive against small-pox. "Not one of the many remedies" now used to allay pain, and to "hold in check the most loathsome maladies and the most violent epidemics" was then in use.

In addition to lack of equipment, the colonial doctor had to attend to all departments of the medical science. Cases demanding surgical methods had to be treated, and often with only untrained assistants. Until about the middle of the 18th century obstetrics was altogether in

the hands of females, and physicians were called in only in complicated or tedious cases. Then, too, the patients were scattered in a wilderness, and an emergency case often meant a daring ride through forests in which roamed wild beasts and hostile Indians.

The rapid increase in population in Virginia during the first half of the 18th century caused the demand for physicians to exceed greatly the number possessing the qualifications to practice. This demand, together with the utter lack of any legal requirements to enter the profession, caused quacks to abound; and ignorant men, often very superstitious and without the least knowledge of medicine, became doctors. Commercialism ran riot, and the position of medicine among the professions became low. This class of practitioners resorted to very strange remedies. When a physician of either class could not be had, still more extraordinary were the curative measures adopted by the patient's non-professional friends—by no means the least being spells, charms, and witchcraft. In case of snake-bite, if the reptile could be caught, it was cut in tiny bits and applied to the wound. For rheumatism the fat of wolves, groundhogs, and skunks was well rubbed in. Erysipelas demanded the application of black cat's blood. Many queer notions prevailed as to the mode of manipulating the indigenous remedies while in the act of gathering them. One was, that the bark of the walnut tree, if gathered as a purgative, must be stripped downward; and if as an emetic, must be stripped upward, in the direction of vomiting.

Among the prescriptions given by this class of physicians, the following, from the note-book of a practitioner of about 1760, may be taken as examples. Diuretic pills were composed of powdered bees, salt prunel, salt of amber, mustard seed, oil of anise-seed, and Venice turpentine. Each dose contained 80 grains of powdered bees. In giving this prescription the doctor adds: "They liquefy the compages of ye blood, deterge ye glands and interiour recesses of ye body and stimulate ye veins, scour out mucus and sand and powerfully promote urine."

"Viper Powder: Take trochees of vipers gr. 15, salt of amber gr. 3, saffron gr. 2, make a powder. It is held a great arcanum against ye jaundice."

A bitter stomach powder composed of chips of guaiacum, sassaphrag, walnut tree rind, roots

of sharp-pointed dock, and 7 other ingredients, in acting "warms, roborates, deterges and useth to bring considerable advantage when by reason of daily hard drinking, sitting and soaking, the fibres of ye stomach being over-washt, become lapse like a tripe, and its villa being slobbered over with slimy putrilage, retain nothing—whence arise loathing of food, morning strainings and vomiting."

Such a condition of affairs in the medical profession caused the better class of physicians (particularly the educated) to remonstrate, and it was through their influence that laws were passed regulating the practice of medicine in Virginia. The earliest fee bill established by law in America was by the colony of Virginia in August, 1736, and was entitled "An act for regulating the fees and accounts for practicers of physic." This law made a difference of nearly one-half in favor of those who had taken some degree in a university over those who had "served an apprenticeship" only. This law allowed to a surgeon and apothecary who had "served an apprenticeship to those trades": For each visit and prescription in town or within five miles, five shillings. To those who "had studied phvsic in any university and taken a degree therein," there was allowed for each visit and prescription, in town or within five miles, ten shillings. To surgeons, for a simple fracture and cure thereof, two pounds. This law also required that in rendering the bill for professional services, "every particular thing made up therein, together with their quantities and prices, shall be expressed." This law, by the premium it allowed for those who had university degrees, tended greatly to promote the higher education of medical men. Special education was thus early appreciated and had its reward; and physicians rose rapidly in the social scale, and, by the time of the Revolution, became a learned and respectable body. This fact is evidenced by the part medical men played in the struggle for freedom from Great Britain and in the early formation of the new government. To this class belonged such men as Arthur Lee and Theodorice Bland.

The first medical college in the American colonies was established in 1765 as a department of the University of Pennsylvania. This was followed by the establishment, in 1767, of King's College, now part of Columbia University, in New York. These and other early

schools trained many of the Virginia physicians of the latter years of the 18th century. Their influence, however, was little felt before the Revolution, and only a few of the doctors of Colonial Virginia were trained in these schools.

The members of the medical profession played an important role during the Revolution. Many of them enlisted as surgeons in the Continental Army. These men established temporary hospitals for the care of the sick and wounded, and by their services aided greatly in the successful outcome of the war.*

In estimating the progress of medicine in Colonial Virginia, let us remember that a large amount of scientific work cannot be expected of that profession in a new country. The doctors of this period were compelled by their position to devote themselves almost, if not quite exclusively, to practice, and had little leisure for the cultivation of the arts and the sciences.

"Science moves, but slowly, slowly, creeping on from point to point",

yet, as we look back on the colonial period and review the lives of the eminent physicians of Virginia alone, we cannot but feel that the progress was one of extraordinary rapidity, considering the difficulties under which these men labored.

During the last generation there has been an earnest and eager investigation of many phases of life in Virginia, and in the South generally. Much has been written about the makers of early Virginia history; and types representing the various aspects of Southern life have been the theme of song and story. The planter, the parson, the soldier, the lawyer, the politician,

*Among the surgeons in the Virginia Continental Line may be mentioned: George D. Alexander, Archibald Alexander, Cornelius Baldwin, Daniel Brown, William Brown, Joseph Brown, Mace Clements, Thomas Christie, William Carter, Sr., James Craik, Joseph Davis, Anthony Dixon, Daniel DeBenneville, George Draper, Edward Duff, George Evans, Humphrey Fullerton, Charles Greer, Patrick Galt, John M. Galt, David Griffith, David Gould, Charles Green, Samuel Gay, David Holmes, Matthew Irvine, Robert Macky, William McMechen, Basset Middleton, George Monroe, William Pelham, Valentine Peyton, Shuball Pratt, Robert Rose, John Ramsey, Joseph Quinlan, William Rumney, Samuel Smith, Alexander Skinner, Augustine Slaughter, Frederick Seigle, John Julian, Charles Taylor, John Trezvant, and James Wallace. The assistant surgeons were: John Brownley, Jonathan Calvert, Miles King, John Knight, Joseph McAdams, Nathan Smith, Joseph Savage, Claiborne Vaughan, George Yates, Robert Farish, William Johnston and Hugh Martin.

and even the slave, have been the subjects of biography and the heroes of fiction. But as yet no worthy biography of an early physician has appeared, and the colonial healer has never had an important place in fiction. No other man, not excepting God's minister, touched so vitally and so many-sidedly the life of his times as did the doctor. It is amazing that neither fiction nor biography has realized the opportunity of presenting to the modern world a man whose profession it was to do good, and who devoted to humanity his undivided efforts to protect the home till the last moment against the coming of the Great Terror!

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IRREGULAR UTERINE CONTRACTIONS IN LABOR.*

By J. H. HIDEN, M. D., Pungoteague, Va.

As the character of uterine contractions in labor is dependent upon and regulated by so many varied conditions, involving the formation, peculiarities, idiosyncrasies and physical strength of the mother; the size, shape, position of the foetus; the position of the uterus and the integrity of its walls; the size, shape and structure of the woman's pelvis, as well as the condition of the parturient canal, I shall not attempt a discussion of the entire subject, but will confine myself to only certain phases of special interest. Indeed, the great field of uterine inertia with its tedious labors and its often difficult problems of maternal and foetal dystocia is mentioned here only to avoid the criticism that it was forgotten. This paper, then, will deal not so much with irregularities in the progress of uterine contractions in labor, but rather with irregular, *partial* contractions. These partial contractions vary greatly in regard to their frequency, the time of their appearance in pregnancy, the severity of their course, and the degree of their pain and gravity.

*Read before the Tri-State Medical Association of Virginia and the Carolinas, at Norfolk, Va., February 19-22, 1913.

They are sometimes so mild in character, and deviate so slightly from the normal as to be scarcely noticed by the attending physician. At other times they become more or less annoying both to the mother and the physician in delaying the progress of labor and in increasing the woman's sufferings. And in some extremely rare cases they are capable of producing the most alarming symptoms.

Now in discussing some of these partial uterine contractions of labor, I wish to present a picture which every obstetrician of experience has seen. The woman has been in labor for 16 or 18 hours and has about completed the first stage of labor when the uterine contractions become stronger, gain in rapidity, and become almost continuous; but an examination of the abdominal wall reveals active contractions in only certain segments of the uterus, showing marked irregularities with perhaps losses more or less prominent in different parts of the organ. And though these pains seem strong and extremely painful and the patient is making the most persistent efforts at delivery, there seems to be no discernible advancement in labor. If allowed to continue in this condition, the pains are likely to go on indefinitely without accomplishing anything but untold suffering; or they may of their own accord finally subside, when the patient and uterus are exhausted. And in some rare cases they may assume a still graver aspect, and the woman may sink into complete exhaustion, while the uterus continues its rapid contractions until it assumes the character of tonic spasm.

It is hardly necessary to say here that as soon as these irregular, partial contractions appear in labor, every effort should be made to ascertain, if possible, their cause, and when practicable, remove it. In many cases of this character, however, no tangible cause can be found, and the case continues for hours as a tedious, painful, exhausting labor. The patient finally becomes agitated, anxious, restless and despondent; the face becomes flushed, the pulse frequent and full, the skin more or less hot and dry, and her limbs convulsively contract, and she begs most piteously to be relieved of her torture. Members of her family become alarmed and great pressure is sometimes brought to bear upon the attending physician to deliver the case at once. And I may say that about at this point in this obstetrical drama, or

perhaps a little previous to this stage, the inexperienced physician is likely to lose his nerve and judgment, and attempt a high forceps delivery. Now I wish to emphasize the fact that such cases of partial, irregular contractions should be relieved by more or less relaxation and rest. For this purpose, chloral hydrate by the mouth or the rectum and a hypodermic of morphine in the proper doses usually give excellent results. In those cases in which these partial, uterine contractions can be ascribed to a rigid cervical os, or spasm at the internal os, some authors suggest the use of warm injections of sterilized water which is allowed to flow against the uterine cervix for five minutes or more. This may be done either with or without the use of opiates as the case requires. Moreover, the administration of an anæsthetic also, especially if pushed to complete relaxation, sometimes acts nicely in allowing the uterus rest and in calming an over-excited condition of its muscular walls. After this period of rest, the pains gradually return and the uterine contractions become more regular and general, and labor then usually progresses in a normal, satisfactory way until delivery is accomplished. This happy result, of course, occurs in such cases as are anatomically normal.

In my own experience a case such as I have just described occurred in my early practice. And on this occasion after putting the patient under complete anæsthesia, the contemplation and hesitation about a high forceps delivery caused me to decide to wait awhile and see what assistance could be gotten from the anæsthetic alone. After a period of about an hour's rest, the pains gradually returned and became more general, the irregularities in the uterine wall diminished, and, to my surprise, the case advanced most satisfactorily, and the child was soon delivered without further assistance.

Again, another phase of irregular uterine contraction which occasionally appears in labor at the termination of its second stage is the so-called hour-glass contraction. This also is due to a partial contraction of certain circular muscular fibres or bands of fibres, producing a constriction and imprisoning the placenta in the uterus in its upper zone, while above and below this constriction the uterine longitudinal muscular fibres are in a more or less relaxed condition. I mention this rare condition only to throw a ray of light upon some strange

freaks in labor of similar import. Many efforts have been made to explain the various causes of this hour-glass contraction, among which will be found the following suggestions: The indiscriminate use of ergot during or following the second stage of labor; some obstruction at or near the cervical os; abnormally placed or adhered placenta; spasm of the uterine cervix; an overgrowth of muscular, circular fibres in the walls of the uterus at about from 4 to 6 inches above the external cervical os, etc. Much stress has been placed upon these structural changes in the uterine wall, namely, a thickening of the muscular tissue in the upper zone and a thinning of that in the lower, with an increase of circular fibres at an intermediate point, as above referred to. This intermediate point has been designated by the following names: Bandl's ring, contraction ring, retraction ring, metallic ring, pelvic-brim stricture, mechanical or clinical os, etc. And it has been held by some of the older authorities (Bandl, Labre and others) that owing to these anatomical changes which occasionally occur in the uterus, this organ has greatly increased in contractile power at the site of this "contraction ring." Though this plausible explanation of the primary cause of the hour-glass contraction may be accepted with some degree of reservation when applied to various kindred conditions of irregular uterine contractions, yet it is well to bear in mind that any deviation from the normal in an over-production of circular fibres at the site of this so-called contraction ring is likely during labor to show itself in some form or degree of irregular contraction. And this irregularity may be observed in every phase of partial contraction, ranging from the mildest form to that of tonic spasm or "uterine tetanus." Moreover, this character of irregular contractions may appear under favorable conditions not only at full term in labor, but also in various stages during pregnancy. I have seen it occur several times in my own practice. In these cases it appeared in different degrees and under different conditions.

Another case of marked interest occurred several years ago in a young woman about 23 years of age, a multipara, advanced about 4½ months in pregnancy. Upon reaching her house I found her in much pain and alarmed over an uterine hemorrhage. The lower abdomen presented a large tumor in the left side

about 3 inches from the median line. The uterus was in a state of tonic contraction. This painful, spasmodic contraction was soon relieved by the local use over the abdomen of hot fomentations and the administration of opiates. The hemorrhage was also controlled, and the case got along nicely for about two weeks when another alarming uterine hemorrhage occurred. In this case a consultation was held and the condition diagnosed as placenta praevia: upon operation this diagnosis was confirmed. This adhered placenta in the lower zone of the uterus covering the cervical os evidently interfered with the natural, symmetrical contractions of this organ, and so favored a tonic contraction. It may be well to note just here that a careful consideration of these accompanying conditions might be of service to some of us in the future, especially in any case in which the diagnosis of a placenta praevia is involved. In other words, a tonic uterine contraction in the fifth month of pregnancy, accompanied with an uterine hemorrhage, strongly suggests placenta praevia.

A third case of interest in my obstetrical experience of an unique character was a patient about 30 years of age—a multipara; advanced about 5 months in pregnancy, and was in the first stage of labor. Upon arriving at her home I found her in a state of collapse—pallid, cold, pulseless and unconscious, in a word, the exact shade and image of death. Her family could give me but little information as to how she sunk into this condition, and about all I could gather was that she had complained of a severe pain in the abdomen, and that this had suddenly become so severe as to produce unconsciousness. Upon a hurried examination I found a tumor about the size of a large cocoanut in the left side, extending about midway between the normal position of the uterus and the left ovary. This tumor, so intimately associated with the violent symptoms of the case, along with its imperfect history, strongly suggested an alarming tubal rupture of an extra-uterine pregnancy, and the case indeed looked hopeless. Further examination of the pelvis and the uterine cervix, along with the absence of the characteristic signs of a haematoma or haematocele, brought me to the decision that the case was what has been called a "tetanoid falciform constriction of the uterus," or, in other words, a tonic spasm of the intermediate circular fibres of the uterus with a partial relaxation of the muscular fibres

of the upper and lower zones. This central spasmodic grasp of the foetus must have involved in some way some part of the uterine ligaments or adnexa, and thus caused the uterine displacement. Fortunately on this occasion I had with me an electric battery, and immediately after giving a hypodermic injection of morphine combined with atropine, it occurred to me that if a faradic current from this battery could pass through the long axis of the uterus it might force the semi-relaxed longitudinal fibres of the upper zone to contract, relieve the constriction, and thus favor a more regular, general contraction of the entire organ. The thought had scarcely flashed through my mind before it was put into action. One pole of the battery was placed over the fundus of the uterus while the other was placed near the right sacroiliac joint. The current was turned on, and within less than five seconds a general, symmetrical contraction took place, and the uterus immediately slipped back to its normal position. All this followed the hypodermic within a very few seconds, so that it appears impossible for the morphine to have had any effect within this time. Indeed, this extremely grave situation was relieved like magic, and the patient soon returned to consciousness. The rest of the labor was easy, natural and uneventful, the patient bearing the strongest, symmetrical contractions without a murmur.

Now in considering the details of this case there are several facts, along with some inferences to which I wish to call your attention: (1) There arises on extremely rare occasions in obstetrical practice the irregular uterine contraction called "tetanoid falciform constriction of the uterus," notwithstanding the opinions of some to the contrary. (2) This condition is probably due to variable causes, and when this form of constriction becomes pronounced, it is a distressing occurrence indeed. (3) The usual explanations of the kindred condition called "hour-glass constriction" are not entirely satisfactory in the case in question; for no ergot had been used in this case; neither was there an adhered or misplaced placenta; nor was I able to detect any spasm at the cervical os, causing an obstruction while the uterus was under the strain of violent, expulsive pains. Such may have been the case momentarily, however, until the body of the uterus was more violently seized higher up at the point of this constriction.

Moreover, if this constriction was due to an over-production of muscular, circular fibres at the so-called "contraction ring," then this pathological increase of muscular tissue must have been formed very rapidly indeed, as the patient was advanced scarcely five months in pregnancy. (4) Had the case been any other morbid condition than what has been given, it would be far more difficult to account for the signs and symptoms under consideration, and the magic correction of all these by the use of electricity. (5) Though positive deductions from the successful treatment of any single case should always be received with some degree of reservation, yet in view of the evidences before us it seems reasonable to believe that when judiciously applied to the long axis of the uterus, in such forms of irregular uterine contraction as I have just described, we certainly have in electricity a remedy worthy of further trial.

ON SOME ADVANTAGES OF SPECIAL TRAINING TO GENERAL PRACTITIONERS DOING COUNTRY WORK.*

By WM. J. OLDS, M. D., Strasburg, Va.

The advantages of more special training to those whose fields of action are remote from the trained specialist, are manifest and manifold, especially in their being able to treat successfully many of the ordinary cases of diseases of the eye, ear, nose and throat, which are now referred to the city specialist or, perhaps, receive some treatment from the family physician which is inadequate or improper.

Let the physicians doing country work combine business with pleasure by spending a few weeks each year at some one or more of the post-graduate schools of the largest cities where he will gain useful knowledge and experience in some one or more special branches, while also having the opportunity to get the latest and best in his general work. In doing this, it is better to select any period than the summer months, as at that time the clinics are generally in charge of the assistants during the absence of the chiefs, and one does not always get the best and fullest instruction and clinical facilities. A few weeks of this work and reading the current medical journals and the latest in text books, will keep one up-to-date, and a moderate outlay for instruments and apparatus will en-

*Read before the Shenandoah County Medical Association, June 25, 1913.

able him to save many of his patients time and expense, and add to one's income what would otherwise go to the city specialist or the so-called "specialist" who travels or treats by mail.

Every country physician should possess an ophthalmoscope and a good working knowledge of the same. So equipped he may diagnose certain diseases indicated by changes in the fundus before the other more general symptoms appear, and sometimes he may thus by being able to begin treatment sooner, save or at least prolong life. More than a few cases which have been referred to the oculist for fitting with lenses, are thus found to have syphilis, intra-cerebral tumor or nephritis. With the ophthalmoscope and tension test he may successfully diagnose the dread glaucoma, and in time apply the treatment to save the vision which otherwise would be so surely lost. He would also be saved from making the fatal mistake of treating glaucoma for iritis or conjunctivitis. If in addition to this valuable instrument the physician will always carry with him an ear and nose and throat speculum, it will save much valuable time and confirm many a diagnosis. Let some of us who are located in the smaller places and doing country work fit ourselves to do some special work in addition to general work; we could then assist and consult with each other, and so save many cases from being referred to the city specialists. We may then treat many cases of the bed-ridden, aged or very ill, for whom the necessary journey would be impracticable or even impossible.

In other cases we can save the patient from the consequences of fatal delay incurred during a journey to the cities, and by giving the necessary treatment save hearing or vision or perhaps a life.

Therefore, I say to all those in general practice with country work, if, in addition, you will try taking up a specialty, while you may not hope to equal your city brethren with their wealth of material and clinical advantages and hospital and other facilities, yet it will broaden you, increase your field of usefulness, and incidentally add materially to your income.

THERAPY OF DRY HOT AIR.

By J. A. BURNETT, M. D., Hartshorne, Okla.

Heat is one of our oldest therapeutic agents. It has been used by both the profession and laity for all ages. Both moist and dry heat are used.

Moist heat cannot be tolerated above 170° F., while dry heat given with a hot air apparatus can be used up to 500° F. As dry heat can be tolerated about three times as hot as moist heat, one can readily see that it is far superior to moist heat when heat is indicated. Dr. H. J. Chapman thinks a patient will stand a higher temperature in winter than in summer. The higher the temperature the more germs are destroyed. Of course the temperature of a hot air treatment should not be unnecessarily high. Bread has been baked in the same apparatus in which a patient received half an hour's treatment. This has suggested the name of baking machine or baking process of treatment. The apparatuses made to give dry hot air treatment are heated by electricity, alcohol, gas, or gasoline. If gas is available, it is usually preferred. It is stated that alcohol is not very satisfactory, because it is hard to regulate the amount of heat. In regard to heating, Dr. Bessie Efner-Fell says:

"There are different ways of supplying heat, but I believe gasoline is the most satisfactory, as you can obtain intense heat in a short time by using air pressure."

In order to be able to use dry heat at a high degree, a costly apparatus made for this purpose must be had.

In giving a dry hot air treatment, the clothes are removed and the parts to be treated are wrapped in Turkish towels; they are then put in the apparatus, when the heat is turned on gradually. The treatments require from fifteen minutes to one and one-half hours. One hour is about the average time for use with the apparatus. The treatments are usually given once a day or every two or three days. In some very few cases two treatments a day are given. The hot air apparatus is not an apparatus for laity use; it is used exclusively by the physician or a trained nurse. Dr. C. E. Skinner said: "It is not expected that every general practitioner will become an hot air expert, but every physician should at least understand the principles of its application and the clinical results derived therefrom, in order that he may be able to decide intelligently when his patient will be benefited by its use. If he does not care to undertake its actual administration, he can send his patient to some one who is an expert." All physicians that I have met who had used hot air apparatuses were well pleased with the results

obtained. I have never met a physician who had used them who had more than one or two objections to them. Some physicians are crowded in office room, and have not space for the apparatus. Many physicians do not like them because they do not like to spend so much time in giving the treatments. One hour's treatment, besides getting the patient ready for the treatment, and the time required with them after the treatment certainly takes time. Some claim that a large majority of patients do not want to pay a physician what he should really charge for such treatments. The same class of patients do not hesitate to go off to Hot Springs or other health resorts and pay high for board and inferior treatment. The hot air apparatus will accomplish all and much more than can be accomplished by any hot springs, Turkish, Russian, electric light, or any other form of baths. The hot air treatment has no comparison to a vapor bath or any other forms of baths. It really more closely resembles the electric light bath. The electric light bath does not take the place of the dry hot air treatment, as it does not reach such high degrees of temperature. The dry hot air treatment is not to be considered a "cure-all;" it is usually used in connection with drugs, surgery, and any other form of treatment that may be needed. Dr. H. J. Chapman says: "There is no single therapeutic agent capable of more good, properly used, than dry hot air. Nearly every doctor today possesses some knowledge of its therapeutic value, yet there are very few making daily use of it."

The dry hot air treatment is a good prophylactic measure. If at the very onset of many diseases the hot air treatment was given, the disease would be prevented. If a patient would take a hot air treatment when they begin to feel bad and out of sorts, it would prevent many diseases.

Various diseased conditions can be cured or benefited by the dry hot air treatment. Rheumatism and all rheumatic conditions are usually cured or benefited by dry hot air. In most all joint affections the hot air treatment is curative. Fractures and dislocations that do not clear up after sufficient time has elapsed, are usually relieved by dry hot air. In speaking of the therapeutic uses of dry hot air, Dr. Hutchinson says: "Syphilitics obtain the same results as from the Hot Springs." The dry hot air treatment is

said to be of much value in Bright's disease. In uremic conditions, pains, inflammations, old ulcers, dropsies, and cases of hyperæsthesia, dry hot air is of benefit.

The dry hot air apparatuses are especially adapted to chronic cases and office practice. Since the apparatuses cannot be moved around from place to place, the patient is required to come to the physician's office for treatment. The hot air apparatus is of equal value in acute diseases as in chronic cases, but for the fact that the patient cannot be brought to the apparatus in many acute diseases out of hospitals. In hospitals and sanitariums, hot air apparatuses can be installed, and dry hot air treatment given in any case, when it is needed. Dr. Bessie Efner-Fell says: "Chronic (not malignant) cases which heretofore have been so unsatisfactory to treat, have responded so well to the dry hot air that instead of dreading to see them come into the office you are glad to be able to make them feel you are interested in their particular case and can assure them of benefit."

SUBACUTE ATONIC DILATATION OF THE STOMACH.*

By MATT OTEY BURKE, M. D., Richmond, Va.

Subacute dilatation usually occurs in men and women who are mentally over-worked and physically idle. It is the result of paresis of the nerve terminals in the gastric muscles. It is most frequently, if not always, caused or accompanied by duodenal catarrh. The catarrhal condition of the duodenum causes hyperchlorhydria, the hyperchlorhydria produces pylorospasm; while the spasm may not be sufficient to cause pain it does retard emptying of the stomach.

Stagnation of the stomach contents with hyperchlorhydria prevents the digestion of carbohydrates and causes fermentation with the production of alcohol, carbonic acid, etc.

The fats are changed into fatty acids. The products of fermentation and decomposition cause the paresis; the weight of the food and the expansion of the gases acting upon the parietic walls cause the dilatation.

The onset is not so sudden as acute dilatation, nor so slow as chronic obstruction. The patient first feels a slight nausea, the appetite begins to wane, he becomes languid and is usually con-

*Read before the Richmond Academy of Medicine and Surgery, April 22, 1913.

stipated. Later there is increased thirst—though he may take an abnormal amount of water,—a sense of heaviness and discomfort in the epigastrium, nausea, and vomiting which may partially relieve the discomfort for a time.

The mind as well as the body becomes sluggish. There may or may not be headache, there is very little if any actual pain in the stomach, only a choking sensation and heaviness.

The skin becomes muddy and dry, the weight decreases. The kidneys may act more frequently, but the amount of urine voided in 24 hours will be reduced. The pulse is slow; there is no fever, and respiration is not accelerated. The epigastrium is distended; the stomach can be easily outlined, the lower border being even with, or below, the umbilicus; splash sounds are distinct; there may be slight tenderness over the epigastrium. The stomach contents have a foul acid odor; total acidity is in great excess, hydrochloric acid above normal, fatty acids present, but no lactic acid, no blood and no rod bacilli. There is evidence of food that had been eaten several days previously. Stools show no blood unless there is diarrhea; fat globules, undigested meat fibers and starch granules in abundance, and mucus thoroughly mixed with the feces are present.

The diagnosis is made by a history of gradual onset, nausea, vomiting without relief, a sense of weight and fullness in the stomach, extreme weakness and languor out of proportion to the condition of the vital organs, increased thirst and absence of actual pain, bulging of the epigastrium, succussion sounds, absence of peristaltic waves, measuring the stomach, and stagnant food. For a time it is impossible to say that we are not dealing with pyloric obstruction, ulcer or cancer. The absence of pain and of a palpable mass when the stomach is empty encourages us to think that there is no permanent obstruction, but time alone can prove this.

The absence of pain, tenderness and occult blood makes us think it is not ulcer.

The excessive amount of hydrochloric acid and absence of cachexia are very good evidence that it is not cancer.

The X-ray is of vast assistance in excluding obstruction, ulcer and cancer.

Treatment is dietetic, tonic and lavage.

204 East Franklin Street.

Clinical Reports.

GENERAL ARTERIAL SCLEROSIS WITH ANEURYSM OF THE ASCENDING AORTA.*

By L. C. ECKER, M. D., Washington, D. C.

Male, 40, single, civil engineer.

Family History: Mother died at 60, following an abdominal operation. Negative history. Father died at 50, of apoplexy. Otherwise unimportant. Has a brother and sister living and well.

Personal History: Uneventful during infancy and childhood. Had measles, no sequelae. Denies scarlet fever, rheumatism, and growing pains. No history of sore throat. Denies absolutely any "specific" infection. Began smoking pipe and cigars when about 29, at first very moderately, but the past 5 years excessively. Up to thirtieth year drank nothing but beer, and that rarely. Since then has taken whiskey regularly, averaging four or five drinks a day; during the past three years six or seven drinks, and in the past six months takes a drink before breakfast. Drinking to excess rather frequently. His work has kept him in the open most of the time, and has never been a great demand on him physically. His appetite has always been moderate, never a "heartly" eater. Constipated as a rule. Takes cathartics about once a week. Has always been active, no shortness of breath or cardiac distress in any form.

Present Illness: Patient sought medical aid November 10, 1912, complaining of dizziness and failing sight. About six months ago, noticed slight dizziness on rising, with dark spots dancing before the eyes. This at first would clear up on taking a drink of whiskey, gradually becoming more stubborn, and he was forced to sit around for an hour or two before he felt steady enough to venture out. Had periods when it was difficult for him to think clearly. A drink usually helped him and patient was becoming more and more dependent upon this stimulation. Within the past two months has not been able to see clearly and has noticed his hands were cold, with some slight numbness in the right hand.

Examination: A poorly nourished, anaemic

*Read before the Medical and Surgical Society of the District of Columbia, April 3, 1913.

man, appearing about 45 years old. Musculature is poor, and very little tissue tension. There is a well-marked coarse tremor to the hands. Face is symmetrical, but the right pupil is larger than the left. Its reaction is sluggish to light and accommodation. The carotid pulsation is marked on the left; very faint on the right. Perfectly normal venous pulsation. The arterial pulsation is forcible above the left clavicle. On radial palpation the pulsation is feeble on the right; forcible on the left. No thrill or expansile pulsation.

The thorax is long and narrow; some praecordial fullness. Excursion is full and equal. Vocal fremitus is present throughout, but on percussion there is slight impairment in the back, just to the left of the median line, on a level with the fourth dorsal.

The point of maximum intensity of apex beat is easily made out in the left fifth interspace 12.5 from the mid-sternum, well beyond the median clavicular line. It is fairly well localized, 115 to the minute, is regular, no shocks or thrills can be made out, is forcible but not lifting or heaving in character. No pulsations can be made out in other parts of the chest.

The right border of the heart is at the right sternal margin in the fourth interspace. The left border percusses 17.5 cm. out from the mid-sternal line in the fifth interspace. This is well outside the mid-clavicular line. The base percusses in the second left interspace. There is a well-marked area of dullness to the right of the sternum in the second and third interspaces. This reaches 4 cm. outside the mid-sternal line.

There is heard a soft systolic murmur over the entire praecordium, the point of maximum intensity being in the third and fourth interspaces just to the left of the sternum. It is not heard to the right of the sternum, but can be heard around on the left side in the axilla and back, and very faintly in the right upper back. It is heard in the left subclavian, though not in the right, nor can it be noted over the abdomen. The heart sounds can be made out at every orifice, and seem to be clear. The aortic second sound is slightly accentuated, being greater than the pulmonary second. The left brachial pulsation can easily be made out on inspection, while the right is with difficulty made out on palpation. There is a distinct difference in the

radials, the right being small and apparently a bit delayed.

The abdomen is slightly scaphoid. Liver percusses 4 cm. below costal margin, and is easily palpable 2 cm. below. Edge is smooth and slightly tender.

Extremities: Negative. The femorals are equal.

Glands: Few small lateral cervicals, pea sized, movable and painless.

First blood pressure taken by Dr. H. P. Parker with a Tycos, the right arm being 145, and the left 225. It has been repeatedly taken since with a Janeway machine (12 cm. cuff) and the pressure in the right arm has varied from 115 to 145 mm. Hg., and the left from 185 to 230 mm. Hg. Pressure was always taken in the sitting position.

Urine: Light colored; specific gravity 1.010 to 1.012, with from a faint cloud on boiling to none at all. Always with hyaline casts, and cylindroids, and an occasional granular cast.

Eye Examination (by Dr. Lamb): Showed beginning inflammation of the macula of each eye but worse in the right. The angio-sclerosis is well-marked; in fact in the arteries of the retina there are a few points showing almost complete obliteration. Wassermann (Noguchi technique) negative.

Pulse tracing (Jaquet machine) shows a well-marked pulsus tardus in the right radial.

Dr. Parker saw the case in consultation and a diagnosis of aneurysm of the ascending aorta was made after a consideration of the following points: 1, Difference in the pupils; 2, The well-marked difference in the carotids and brachials; 3, The area of dullness extending to the right sternum in the second and third interspaces; 4, symptoms of general arterial sclerosis; 5, The marked difference in the blood pressure, there being 80 mm. Hg. difference in the arms.

X-ray Examination (by Dr. Merrill): Showed enlarged heart shadow, more to the left.

The right border is 5 cm. from mid-sternal line and the left border is 13 cm., being respectively in fourth right interspace and fifth left interspace.

Right aortic curve very prominent, extending 3.5 cm. from median line. Left aortic curve is normal.

1217 Connecticut Avenue.

Proceedings of Societies, Etc.

MEDICAL AND SURGICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

Reported by LEWIS C. ECKER, M. D.

This Society met April 3, 1913, Dr. Hickling presiding. Under the heading of

Presentation of Pathological Specimens,

Dr. Kelley presented specimen of ectopic gestation. The case had an ectopic 5 years previous, and a year and a half ago had a normal labor. This ectopic was diagnosed before rupture, which occurred on the way to the hospital. It was estimated at about 6 weeks.

Dr. Gwynn had a similar case. The first ectopic occurred 4 years previously, and he was able to make a diagnosis and operate before rupture in the second pregnancy.

Dr. Moran had had a case of two ectopics with two normal labors between.

Dr. Reisinger brought up the question as to the advisability of an ovariectomy.

Dr. Kelley, in closing, said that an inflammatory condition of the tube predisposed to extra-uterine pregnancy. In regard to removing the tube, the chance of a recurrence is rare. Better leave the tube. Had one full term ectopic with recovery.

Dr. Ecker presented the history of a case of **General Arterial Sclerosis with Aneurysm of the Ascending Aorta.***

Dr. Fremont-Smith spoke of the rarity of aneurysm without a specific history in such a young person, and referred to the very early general arterial sclerosis in this case.

Dr. Hickling called attention to the fact that alcohol for a few hours will impair the Wassermann reaction.

Dr. Ecker, in closing, said there were no signs of syphilis, and that the patient had had no alcohol for weeks at the time the Wassermann was done.

Dr. Walsh read the essay of the evening, taking for his subject—

Epilepsy.†

DISCUSSION.

Dr. Hickling, in opening the discussion, re-

marked that the treatment of such cases is dependent upon underlying conditions. Where adenoids are a source of irritation, these should be removed. Syphilitic epileptics should receive the specific treatment. Traumatic epilepsy, really resembling Jacksonian epilepsy, may need surgical interference. Toxic cases with heavy breath and gastro-intestinal symptoms are improved with a regulation of the diet.

Hysterical convulsions, which are confused with epilepsy, are much longer, lasting at times half an hour. True epilepsy is of shorter duration. Syphilitic epileptics usually develop after the twenty-fifth year. The exact cause is not known, and there are many theories. Question of the thickness of the skull is not definite. In a collection of 100 skulls there were many very thick ones, with no history of epilepsy; on the other hand, the thickness might be secondary to the epilepsy, due to trauma. There is a strong leaning to the supposition that some toxin causes the discharge of a reflex from the motor area. The "masked" irregular cases are of interest from a criminal standpoint, certain guilty persons trying to be excused on the grounds of epilepsy. Now it is the intention of the courts to hold an epileptic responsible for a crime. In the treatment, small doses of bromides are much better, the large doses being no longer given. The question of treatment is "individual."

Dr. Reisinger said he had a case where overeating brought on convulsions. He tried to have his patients "Leave the table hungry."

Dr. Fremont-Smith reported a case with marked deformity of the foot, in which it was operated on as a possible cause of irritation. No relief. Dr. Cushing removed a plate of bone, under the supposition that it might be Jacksonian, with no improvement.

Dr. Shands and *Dr. Dunlop* had seen no cases with orthopedic deformities as an underlying cause.

Dr. Walsh, in closing, said he had never used the silver salts; and that in his experience the use of adonidin in combination with bromides produced no drug rash.

The monthly bulletin of the Richmond Board of Health showed 213 deaths in this city for August, against 222 for August of 1912.

*For report of case, see page 275.

†This paper on Epilepsy was published in the Semi-Monthly for August 8, 1913, without knowledge of an accompanying discussion. (Editor.)

AMERICAN PROCTOLOGIC SOCIETY.

(Continued from last issue.)

The Ano-Rectal Line—Its Clinical Significance.

By COLLIER F. MARTIN, M. D. Philadelphia, Pa.

After discussing the development of the anus and rectum, Martin states that the ano-rectal line, or dentate border, has a very important clinical significance, in that it is the point at which both the blood supply and the nerve supply become differentiated. Above it the blood is carried by the portal circulation to the liver; while below it, the blood stream mingles with the general circulation by way of the inferior vena cava. Above it, the rectum is supplied only with visceral or sympathetic nerve fibers, while below it, the anus and its surrounding structures are supplied with spinal nerves, and by sympathetic filaments. These spinal nerves carry sensory impulses common to nerves having specialized cutaneous nerve-endings.

Below the ano-rectal line, as evidence of irritation of the spinal innervation, sensory disturbances are expressed in terms of pain, itching, formication, and in alteration in spinal sense of touch, and temperature, with their modifications such as dryness and moisture. Stimuli producing these sensory disturbances show their presence by exciting motor contraction, or by inducing alterations in secretion.

Above the ano-rectal line all of the specialized spinal sensations are absent, only the visceral sensations being present. In the rectum it is only pressure and muscle-sense that appeal to our consciousness. This sensation is translated in the brain into a desire for stool, which desire is inhibited or assisted voluntarily, as occasion may require.

Excessive spasm of the involuntary muscles supplied by visceral nerves produces an unpleasant sensation, which differs from pain of spinal origin in that it is difficult to localize, and may be described more as an ache, which is difficult to bear and exhausting to the patient.

Lesions of the crypts of Morgagni, since they involve both the visceral nerve supply of the rectum and the spinal innervation of the anus, are associated with many disturbances of the reflexes.

Infection, and malignant processes, occurring above the dentate border, tend to spread upwards, by way of the deep lymphatics, to the

pelvic or uro-genital organs, or to the liver, via the portal system. Below the ano-rectal line superficial abscesses result from infections of the proctodeum and the rectal crypts. Malignancy here is associated frequently with extension to the inguinal glands.

In general, there is a marked tendency for pathologic processes to limit their invasion to the embryonic structure in which they began; the ano-rectal line being the "great divide" between the ectodermic and the entodermic structures. Rectal infection and malignancy rarely extend below the dentate border, while anal pathology usually remains below this line and the levator ani muscles.

Ano-rectal symptomatology is equally differentiated. The subjective symptoms of a pathologic process bear little relationship to the lesion *per se*, but depend upon the interference with the functions of the spinal or sympathetic nerve supply of the tissues involved, whether this interference be mechanical, inflammatory, or functional.

Further Observations on Pruritus Ani: Its Probable Etiologic Factor; Results of Treatment.

By DWIGHT H. MURRAY, M. D., Syracuse, N. Y.

Dr. Murray's paper, which is a continuation of his investigations on the etiology and treatment of pruritus ani, gave some new points which he had observed during the past year, and his additional experience in the treatment of patients. He found no reason for materially modifying his former reports, but has gathered data which helped to prove the correctness of his previous work. He found streptococcic infection in three cases of pruritus ani and vulvae, and in four cases of pruritus that had involved the scrotum as well as the anus. These complicated cases improved, with the exception of two vulvae cases, by the use of the vaccine treatment.

During the past year Dr. Murray has increased his former series of thirty-two cases, by twenty-five additional cases, in five of which streptococcic infection was not found. These cases showed other infections, which still further proves the coceygenous nature of pruritus ani; and also demonstrates that other bacteria than streptococci may bear a causal relationship, as was hinted in his first paper on this subject.

His cases, so far as he has been able to determine, have not been affected by diet. Since Dr.

Murray discovered the infection in pruritus ani he has never interfered with the food of any patient; neither has he restricted them in the smoking and drinking habits. The improvement under the vaccine treatment, without regard to eating, drinking, or smoking, gives him additional proof for the bacterial theory.

During the past year he has carefully investigated as to whether or not the itching extends into the anal canal beyond Hilton's white line, with the result that only in one instance did it extend beyond that point, and then only for a short distance.

His investigations of the past year have given him additional proof that pruritus ani is not caused by any local lesion within the anal canal, and that when such lesions exist with pruritus ani they are coincidental.

In the cases that have been operated for local lesions the pruritus ani has not been permanently improved as a result of the operative procedure.

He said that rectal and general surgeons have observed many cases of fistulæ with discharges upon the anal skin, without pruritus ani being present. The same is true of hemorrhoids, constipation, and other rectal lesions, pruritus ani occurring in only a small proportion of such cases. He, therefore, still holds that when pruritus ani exists in connection with other lesions that it is a coincidence. In his 1912 report he gave a summary of nine hundred consecutive rectal cases wherein this fact was established fairly well.

He referred to the opsonic index, or more properly the coefficient of extinction of opsonins, and claimed that much valuable information was to be gained by this test.

His work shows that if a complicating infection exists, and other bacteria than streptococci are found to be the sole invading organisms, we must use the corresponding autogenous vaccine. The opsonic index, following a bacterial diagnosis, is the proper method for determining this.

The results of treatment, and the history of patients, prove to him, that if pruritus ani exists with local lesions which demand operation, that the prognosis depends upon whether a skin infection is present or not. If the skin infection is present, the local lesions may be cured by the operation, but the patient should not be led to believe that the pruritus ani will also be cured by it. *Per contra*, if a skin infection does

not exist with a local lesion and itching, the prognosis may be that the itching will very likely cease with the cure of the local lesion.

After personal investigation in treating, watching results, noting how cause, effect, and results dovetail together; comparing these investigations with statements and theories made in text-books, and in articles appearing from time to time in medical journals, and containing no definite pathology or scientific reasons for cause and effect, Murray cannot understand how the profession will uphold such theories, rather than the bacterial theory which has been so well proven in his own cases and confirmed by other observers.

The uniformity of the bacteriologic findings is a strong support for the bacterial theory of the etiology of pruritus ani. The chronicity of all the cases; the uniform symptoms; the similar conditions of the skin; the locality; the regularity as to the time of attacks; the uniformity of itching outside of Hilton's white line; the uniform blood findings as to the coefficient of extinction of opsonins; and the fact that all local applications which have given beneficial results in the past have contained a strong germicide; all point directly to a common cause. Further confirmation is found in the uniformly good results of treatment with autogenous vaccine of the variety of bacteria against which the patient has a low phagocytic power; and in the lack of good results by the various haphazard methods of treatment in general vogue.

His reference to fissures in previous papers having been misunderstood by some, he desired to state that he had referred only to fissure-like cracks of the skin, and not to anal fissures or ulcers.

Endo's medium is used to plate the cultures. The vaccine employed is of the strength of one billion to the cc., beginning with two minims, or one hundred and thirty millions.

Dr. Murray refers to a paper written by Dr. Jerome Wagner, of New York City, published in the May number of the *Medical Review of Reviews*, in which Dr. Wagner reports some erroneous ideas claimed to have been gleaned from reading Murray's first two reports. Dr. Wagner not having been able to confirm these reports, Dr. Murray pointed out the errors of technique in Dr. Wagner's work, as well as his errors in the interpretation of the reports.

Dr. Murray gave statistics, in favor of his

theory, drawn from three years' original work on the subject; he also gave a summary of the results of treatment, showing the favorable clinical results with autogenous vaccines in a large majority of the cases treated.

He summed up his conclusions, as follows:—

1st. Results of the past year's work continue to uphold the correctness of the bacterial theory of pruritus ani.

2nd. It is advisable to make a bacteriologic examination of all cases of pruritus vulvae; also of cases of scrotal pruritus.

3rd. The coefficient of extinction of opsonins is a valuable aid in diagnosis in complicated and obstinate cases.

4th. Pruritus ani in this series of cases rarely extends above the white line of Hilton, and it is still *sub judice*.

5th. The presence of a skin infection with a local lesion begets an unfavorable prognosis for the cure of pruritus ani by an operative procedure.

6th. The absence of a demonstrable skin infection and the presence of a local lesion, with pruritus ani, will justify us in making a favorable prognosis for the cure of the pruritus ani by an operative procedure.

7th. Pruritus ani, with such infection as we have demonstrated, and a lesion existing in the anus or rectum, according to his statistics, is a coincidence; and the latter lesion is not the cause of the pruritus ani.

8th. The sphincter muscle does not allow a leakage of rectal mucus upon the anal skin of one who has pruritus ani, except there is a patulous anus, any more than it does in a normal individual who has no pruritus ani. The moisture of the parts is due to a low grade inflammation of the infected anal skin.

Treatment of Fistula-in-Ano.

By J. A. MAC MILLAN, M. D., Detroit, Mich.

There are three essentials for the operation for this condition:

1st. An incision that will open up every ramification of the fistulous tract.

2nd. The excision of the fibrous tissue which forms its walls.

3rd. Free drainage, and a regulation of the granulation by means of pressure by gauze packing.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

(Continued from last issue.)

Decannulation and Extubation After Tracheotomy and Intubation Respectively.

By CHEVALIER JACKSON, M. D., Pittsburgh, Pa.

The different forms of laryngeal stenosis associated with difficult decannulation or extubation may be classified into the following types:

1. Pain. Breathing through the neck with a properly placed tracheotomy cannula is much easier than breathing through the mouth as, once the patient becomes accustomed to it for quite a while, he does not feel that he is getting enough air through the mouth, even though the larynx is perfectly patulous. In addition to this there is a nervous cell habit arising from previous experience with the stenosis that terrorizes the patient the moment he feels the slightest dyspnea. 2. Spasmodic. This form of stenosis may be associated with panic, or may be excited by subglottic inflammation. It is usually overcome by the same means as those suggested for panic, together with the treatment of inflammatory conditions that may be present. Doubtless one of the chief causes of adductor spasm is the prolonged wearing of the intubation tube. 3. Paralysis. Bilateral ankylosis of the cricoarytenoid joints may prevent decannulation until the laryngeal stenosis is relieved. This operation is not to be advised except in such cases as have remained rigid for a period of twelve months or more, and this is not meant to include the fixation that is associated with malignant, tuberculous or luetic infiltrations. 4. Neoplasms. Decannulation in neoplastic cases will depend upon the nature of the growth and its curability. 5. Hyperplastic. 6. Cicatricial, (a) loss of cartilage; (b) loss of muscular tissue; (c) fibrous. The hyperplastic and cicatricial types of organic stenosis preventing decannulation may be classified as follows: 1. Tuberculosis. 2. Lues. 3. Scleroma. 4. Acute infectious diseases, (a) diphtheria, (b) typhoid fever, (c) scarlatina, (d) measles, (e) whooping cough. 5. Decubitus, (a) cannular, (b) tubal. 6. Trauma, (a) tracheotomic, (b) intubational, (c) operative, (d) suicidal. Conditions outside of the paralytic and neoplastic forms are almost all the result of inflammation, often with ulceration and the secondary tissue changes. In the infective granulomata it is practically always the

mixed infections from oral sepsis running that do the harm. The chief exception to this is diphtheria, which is in many cases a distinctly necrotic process. In the rare cases in which laryngeal tuberculosis of such severe type as to require tracheotomy is cured, decannulation presents little difficulty after the infiltrations are reduced. The reduction of these infiltrations by the galvano-cautery through the laryngeal speculum is readily accomplished. Should cicatricial stenosis from ulceration remain, it is to be treated in the same way as cicatrices from other causes—by laryngostomy. In those old cases of luetic fibrosis little amenable to the older methods of treatment, salvarsan has accomplished wonders. Dr. Emil Mayer has recommended the use of radiotherapy in the treatment of scleroma. So far, however, the results have been so unsatisfactory that they practically constitute the only cases in which decannulation is impossible. When typhoid fever was prevalent in Pittsburgh, it was found that the ulcerative lesion in the larynx was practically always the result of mixed infection, but in some instances they were due to thrombosis of a small vessel with subsequent necrosis. The after-treatment of these cases is chiefly by prolonged intubation, and in some cases by laryngostomy. Scarletina may be followed by acute laryngeal stenosis which is cicatricial. Occasionally foreign bodies may ulcerate through from the esophagus into the trachea. A properly fitting tube will not cause any ulceration, if it is free from roughness or sharp edges and is removed sufficiently often to be cleaned. For diphtheria and like conditions I have never seen any improvement on the original O'Dwyer apparatus. When a tracheotomized case reaches the stage when it is to be trained to breathe through the mouth, it is necessary to occlude the cannula. For the reduction of exuberant granulations, nothing has yielded better results than resorcin. As a stimulant to epithelialization the German preparation "scarlet red" (Biebrich) in a sterile 20 per cent mixture has yielded excellent results during laryngostomy. One of the most common causes is the neglect of frequent changes of dressings.

Congenital Occlusion of the Postnasal Orifices, With Report of a Case.

By CHARLES W. RICHARDSON, M. D., Boston, Mass.

In July, 1912, a case came under my observation in which there was complete osseous

obstruction of the postnasal orifices at as early a period in the life history of the patient as any observer has noted such a condition. In a search of the literature I have found only a few cases in which the obstruction was observed in infancy. While it is not possible to tabulate all the cases recorded in the literature, I judge that they do not exceed one hundred. The obstruction of the postnasal orifice may be membranous or osseous. The former are usually found posterior to the nasal cavities in the nasopharyngeal cavity, but lie in contact with the postnasal orifices so as to completely obstruct them, while the latter are usually placed within the chamber within a millimeter or more from the free border of the posterior nasal orifice. To these two forms may be added congenital atresias, by which the bones entering into the formation of the postnasal orifice become united, thus more or less completely obstructing the postnasal orifices.

The child that came under my observation in July, 1912, had marked difficulty in breathing. The child struggled for air and the face became suffused and slightly cyanosed, the condition being relieved when the child began to cry. Whenever it ceased to cry there would be a recurrence of the difficult breathing. Examination demonstrated without doubt a deformity which was a complete obstruction of the postnasal orifices. By the end of the second week the child learned to maintain mouth breathing and also learned to feed in a short time, and has developed in a normal manner. The question is: When is the proper time to operate? The marked success with this case seemed to favor the expectant surgical policy in these cases.

Foreign Bodies in the Esophagus, With Report of Two Cases.

By CORNELIUS G. COAKLEY, M. D., New York, N. Y.

The first patient, a boy 16 years of age, thought he had swallowed a piece of plate in his soup. He had a temperature of 105°, rapid pulse and pneumonic area in the right lung, when first seen. Examination of the pharynx showed edema extending from the vault of the nasopharynx as far down as one could see with the laryngeal mirror, or feel with the fingers. It much resembled a retropharyngeal abscess. The X-ray showed a triangular shaped foreign body. It was jagged and evidently had cut into the mucous membrane so as rapidly to infect

the pharyngeal mucosa, and the secretion from the infected pharynx passing into the larynx, setting up a septic pneumonia within twenty-four hours. The boy died fourteen hours after the operation, from acute septic pneumonia. This case shows the necessity for the prompt operative relief for removal of sharp foreign bodies. The same day I saw a boy three years of age who had swallowed a coin. The X-ray showed the coin at the level of the sixth cervical vertebra. The child had no symptoms. The coin was removed by operation and the child suffered no subsequent discomfort. In this instance the coin had been in position for five days before it was removed.

Symposium on Phlegmons of the Upper Respiratory Tract—Report of a Case.

By F. E. HOPKINS, M. D., Springfield, Mass.

This case illustrates the possibility of erosion of a large blood vessel. The patient was a male, 26 years of age, of poor resistance because of leading an irregular life and having had a recent acute illness. He had suffered from measles and while convalescing took cold. There was marked swelling on the left side with severe pain, but the patient was not prostrated and at no time did his temperature go above 101° F., or his pulse above 80 or 90. Deep incisions were made, but these yielded no pus, and there was no evidence of pointing. Two days later a hemorrhage occurred which was controlled by pressure. On the following day a terrific hemorrhage occurred and quickly proved fatal. Such an examination as could be made immediately following death showed rupture through the posterior pillar, the flood from the eroded carotid finding exit there. Such a mass of cellular infiltration should be explored with a blunt instrument, even the finger, following unfruitful incision. The wonder is not that phlegmons threatening life occasionally develop, but rather, considering the frequency with which infections of this region occur, that they are so rare that an active professional life may pass and not a single one come under observation. Microscopic findings are of little value in determining the treatment of these cases. Early and effective drainage is the best assurance of a favorable prognosis. Suffocation from flooding of the larynx by the sudden rupture of an abscess has been reported, and tracheot-

omy has been required because of closure of the pharynx by infiltration and edema, but the complication I wish to emphasize is that of erosion of blood vessels by the necrotic process.

Inflammation of the Lateral Columns of the Pharynx Leading to Abscess Formation, With Report of Cases.

By HENRY L. SWAIN, M. D., New Haven, Conn.

Any isolated mass of lymphoid tissue can in a general way be expected to act when inflamed exactly after the fashion of the faucial tonsil, and can have, like the latter, simple, acute, follicular, rheumatic, diphtheritic and phlegmonous inflammations. The adenoid or pharyngeal tonsil may have acute as well as chronic inflammation. The same is true of the lingual tonsil. If we continue to remove root and branch from young children all of their adenoids and faucial tonsils, there will be abundant need to devote more and more attention to these masses of lymphoid tissue as well as to the lingual tonsil. In years gone by, when adenoids were removed from children and the faucial tonsils were left untouched, the latter subsequently enlarged into a perfectly healthy growth, as though needed by the system. If the faucials are thus ruthlessly removed, there will be enlargement of the lingual tonsil or lateral columns of the pharynx, as there has been of the faucials following the older simple adenoid operation. If this is logically true, we will find not only acute inflammations of these structures but also phlegmons. We have assumed more or less arbitrarily that as the lateral column of the pharynx is no mean mass of lymphoid tissue, and as it has been known to have all other kinds of inflammation to which lymphoid tissue is heir, we have a logical right to expect that there may also be the phlegmonous type, and I propose to submit facts concerning certain cases confirmatory of this statement. I recently had six cases of edema of the larynx in two of which there was no quinsy at all. There was inflammation of the lateral column of the cord in both these instances, and there was in one a marked general, what may be called rheumatic, infection, where various joints of the body were affected, but with no persistence of the symptoms in any one place for any length of time. In these various cases of edema one has to look to some other cause than pressure.

Phlegmons of the Upper Respiratory Tract.

By JOHN O. ROE, M. D., Rochester, N. Y.

The phlegmon is simply another name for inflammation, although clinically it is regarded as an extraordinary intense inflammation and looked upon as being of more or less malignant character. We may have an inflammation of this character in any part of the body, the intensity of which may depend upon the virulence of the infection and the resistance or lack of resistance of the patient, or of the tissues, to such infection. Owing to the difficult breathing or choking which such inflammation causes in the upper air passages, it has received the name of angina. Inflammations of a severe grade, termed phlegmons, may involve any portion of the upper respiratory tract. We almost invariably find a phlegmon attacking one whose general condition has become weakened. The treatment of these infections requires no special law unto itself, and must be dealt with according to the location and associated complications.

Report of a Case of Phlegmon Starting as a Peritonsillar Abscess and Extending Downward as Far as the Second Ring of the Trachea.

By GEORGE L. RICHARDS, M. D., Fall River, Mass.

This case had its origin primarily in a peritonsillar abscess and secondarily in a diseased tonsil, and is a good example of a severe phlegmon.

Book Announcements and Reviews

The Semi-Monthly will be glad to receive new publications for acknowledgment in these columns, though it recognizes no obligation to review them all. As space permits, we will aim to review those publications which would seem to require more than passing notice.

Diseases of the Stomach, Including Dietetic and Medicinal Treatment. By GEORGE ROE LOCKWOOD, M. D., Professor of Clinical Medicine in the Columbia University; Attending Physician to Bellevue Hospital, New York. In one octavo volume of 624 pages, with 126 engravings and 15 plates. Cloth, \$5.50, net. Lea & Febiger, Philadelphia and New York, 1913.

Lockwood's Diseases of the Stomach has many of the ear-marks of an old friend of years ago—Lockwood's Manual of the Practice of Medicine. While the volume under notice is different in its scope from the Manual, we find that the author,

after an interval of seventeen years, retains the same ease of description—combined now with maturity of added experience—that made subjects, then difficult, more readily understood. The author describes diseases of the stomach as he has seen them after many years of practice and observation in this special field. Where the results of his studies have been at variance with accepted teachings, opposing views have been fully noted. In the presentation of the subject the needs of the general practitioner have been borne in mind, and the physician who has this book at his command will, we feel assured, find it eminently practical and satisfactory.

An Essay on Hasheesh Including Observations and Experiments. By VICTOR ROBINSON, M. D., Contributing Editor, Medical Review of Reviews; Pharmaceutical Chemist, Columbia University; Author of "Pathfinders in Medicine," etc. Medical Review of Reviews, Publishers, 206 Broadway, New York. 1912. Cloth. 12mo. 83 pages. Price, 50 cents.

Surgical Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. Volume II, Number 2. April, 1913. 8 vo., 171 pages. Illustrated. Philadelphia and London: W. B. Saunders Company, 1913. Published Bi-Monthly. Price per year: Paper, \$8.00; cloth, \$12.00.

Text-Book of Gynecology. By WILLIAM Sisson Gardner, M. D., Professor of Gynecology, College of Physicians and Surgeons, Baltimore, Md. With 138 Illustrations in Text. New York and London: D. Appleton & Co., 1912. 8vo. Cloth. 286 pages.

Specific Diagnosis and Medication. By the late JOHN M. SCUDDER, M. D., Professor of the Principles and Practice of Medicine in the Eclectic Medical Institute, etc. Twelfth Edition—reprinted. Cincinnati, O.: John K. Scudder, Publisher. 1913. 12mo. Cloth. 819 pages. Prices, \$3.

1000 Surgical Suggestions. By WALTER M. BRICKNER, B. S., M. D., Adjunct Surgeon Mount Sinai Hospital, Editor-in-Chief American Journal of Surgery, with the collaboration of JAMES P. WARBASSE, M. D., HAROLD HAYS, M. D., ELI MOSCHCOWITZ, M. D., and HAROLD NEUHOF, M. D. 225 pages. Cloth bound semi-de Luxe, \$1.00; Full de Luxe, leather, \$2.25. Surgery Publishing Company, 92 William Street, N. Y.

Gonorrhea in the Male.—A Practical Guide to Its Treatment. By ABR. L. WOLBARST, M. D., Consulting Genito-Urinary Surgeon, Central Islip State Hospital; Professor of Genito-Urinary Diseases, New York School of Clinical Medicine, etc. Published by The International Journal of Surgery Co., New York. 1911. Cloth. 8vo. 175-VI pages.

Manual of Cystoscopy. By J. BENTLEY SQUIER, M. D., Professor of Genito-Urinary Surgery, New York

Post-Graduate Medical School and Hospital, and HENRY G. BUGBEE, M. D., Instructor in Genito-Urinary Surgery, New York Post-Graduate Medical School and Hospital. Paul B. Hoeber, Publisher, 69 East 59th Street, New York. 1911. 8vo. Flexible leather. 117 pages. Illustrated with 26 original plates, 18 of which are colored. Price, \$3 net, sent prepaid.

Landmarks and Surface Markings of the Human Body. By L. BATHE RAWLING, M. B., B. C. (Cant.), F. R. C. S. (Eng.), Surgeon with Charge of Out-Patients, Demonstrator of Practical and Operative Surgery, Late Senior Demonstrator of Anatomy at St. Bartholomew's Hospital, etc. Fifth Edition, with 31 Illustrations. Paul B. Hoeber, Publisher, 69 East 59th Street, New York. 1912. 8vo. Cloth. 96 pages. Price, \$2 net.

Ophthalmic Myology—A Systematic Treatise on the Ocular Muscles. By G. C. SAVAGE, M. D., Professor of Ophthalmology (Defects of the Eye) in the Medical Department of Vanderbilt University; Ex-President of the Southern Medical Association, etc. Second Edition, with 84 Illustrative Cuts and Six Plates. Published by the Author, 137 North Eighth Avenue, Nashville, Tenn. 1911. 8vo. Cloth. 685 pages.

Compendium of Diseases of the Skin—Based on An Analysis of Thirty Thousand Consecutive Cases—With a Therapeutic Formulary. By L. DUNCAN BULKLEY, A. M., M. D., Physician to the New York Skin and Cancer Hospital. Fifth Revised Edition of the Manual of Diseases of the Skin. Paul B. Hoeber, Publisher, 69 East 59th Street, New York. 1912. 8vo. Cloth. 286 pages. Price, \$2 net, sent prepaid.

Sex Hygiene for the Male and What to Say to the Boy. By G. FRANK LYDSTON, M. D., Professor of the Surgical Diseases of the Genito-Urinary Organs and Syphilology, Medical Department State University of Illinois; Member American Medical Association; Delegate from the U. S. Government to the Congress for the Prevention of Infectious Diseases, Brussels, Belgium, etc. The Riverton Press, Chicago. 1912. Cloth. 8vo. 304 pages. Illustrated with 24 Engravings. Price, \$2.25, postage prepaid.

A Tuberculosis Directory—Containing a List of Institutions, Associations and Other Agencies Dealing with Tuberculosis in the United States and Canada. Compiled for The National Association for the Study and Prevention of Tuberculosis. By PHILIP P. JACOBS, Ph. D., Assistant Secretary New York, 105 East 22nd Street. 1911. 8vo. Cloth. 331 pages.

Manual of Pharmacy for Physicians. By M. F. DE LORME, M. D., Ph. G., Assistant Professor of Materia Medica and Pharmacology, Long Island College Hospital, New York. Third Edition, with 19 Illustrations. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut Street. 1912. 8vo. Cloth. 221 pages. Price, \$1.25 net.

Applied Bacteriology for Nurses. By CHARLES F. BOLDUAN, M. D., Assistant to the General Medical

Officer, Department of Health, City of New York, and MARIE GRUND, M. D., Bacteriologist, Department of Health, City of New York. Cloth. 12mo., 166 pages. Illustrated. Philadelphia and London: W. B. Saunders Company, 1913. Cloth, \$1.25 net.

Collected Papers by the Staff of St. Mary's Hospital (Mayo Clinic) for 1912. Cloth. 8vo., 342 pages. 219 illustrations. Philadelphia and London: W. B. Saunders Company, 1913. Cloth, \$5.50 net.

Diet Lists of the Presbyterian Hospital, New York City. Compiled, with notes, by HERBERT S. CARTER, M. D., Assistant Visiting Physician to the Presbyterian Hospital, Associate in Medicine at Columbia University, etc. Cloth. 12mo., 129 pages. Philadelphia and London: W. B. Saunders Company, 1913. Cloth, \$1.00 net.

Surgical Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. Volume II, Number 3. (June, 1913). 8vo. 185 pages. 62 Illustrations. Philadelphia and London: W. B. Saunders Company, 1913. Published Bi-Monthly. Price per year: Paper, \$8.00. Cloth, \$12.00.

Editorial.

The Medical Society of Virginia

Will hold its forty-fourth annual session at Lynchburg next month—October 21-24. With such preliminary information as is before us, there is every reason to anticipate "a big time" both scientifically and socially, and Lynchburg, by reason of its central location and easy accessibility, being on the Norfolk and Western, the Southern, and the Chesapeake and Ohio railroads,—should prove as convenient a meeting place as any in the State.

The Subject for General Discussion will be *Tuberculosis*, subdivided as follows: Diagnostic Methods, Dr. G. Paul LaRoque, Richmond; Prophylaxis, Dr. A. W. Freeman, Richmond; Dietetic Treatment, Dr. J. J. Lloyd, Catawba Sanatorium; Medical Treatment, Dr. Stephen Harnsberger, Catlett; and Surgical Treatment, Dr. Jos. T. Buxton, Newport News.

In addition to the above, there will be three other symposiums, viz.:

1.—*Birth Traumata*, Their Interest to the Obstetrician; Dr. John F. Winn, Richmond; Their Influence in Child Development, Dr. McGuire Newton, Richmond; Their Causative Influence in Epilepsy and Insanity, Dr. R. B. Tucker, Richmond; and Surgical Treatment in

Early and Late Cases, Dr. Charles H. Frazier, Philadelphia. This subject will be far-reaching, and should be of value alike to the obstetrician, the specialist, the surgeon and the general practitioner.

2.—Symposium on *The Heart*, conducted by Drs. P. S. Roy, Washington, D. C., Arthur Hirschfelder, Baltimore, A. G. Brown, Richmond, and J. C. Flippen, University of Virginia.

3.—Symposium on *Rheumatism*, which is being arranged for by Dr. J. Garnett Nelson, Richmond.

A rather unusual feature as to the papers already promised lies in the fact that up to this time the papers are chiefly on internal medicine—a matter that should prove of interest to the general practitioner,—while but few surgical papers have been listed, and none on the eye, ear, nose and throat, and none on X-rays.

The officers of the Society, Dr. Southgate Leigh, President, and Dr. Paulus A. Irving, Secretary, are making strenuous efforts to make the meeting a huge success, and we are informed that Lynchburg is going to "out-do" itself in the way of entertainments, both by the profession, the laity and the commercial organization.

It is stated that hotel accommodations are ample. The Virginian, lately constructed, the headquarters of the Society, is a handsome building, commodious and elegant in its appointments. The sessions of the Society will be held in a large hall on the second floor of this hotel. The Carroll, only one block away, has been recently fitted up and will accommodate a large number. Dr. Geo. J. Tompkins is chairman of local committee of arrangements.

The President, Dr. Leigh, will have as his invited guests at this meeting, Drs. A. G. Gerster, New York, the father of asepsis and antisepsis in this country; Charles H. Frazier, Philadelphia, and John B. Murphy, of Chicago. Fraternal Delegates so far announced will be Drs. Arthur Hirschfelder and Trigrant Burrow, of Baltimore.

Members who know of worthy physicians who are not already members of the State Society are urged to use their influence at once with such physicians to become members. All applications should be accompanied by the fee of two dollars, and should be forwarded to Dr. Wm. D. Turner, Chairman Membership Committee, Ocean View, Va., or Secretary, Dr. Paulus A. Irving, Farmville.

School for Health Officers.

Beginning this fall, Harvard University and the Massachusetts Institute of Technology are to maintain in co-operation a School for Public Health Officers. The facilities of both institutions are to be available to students in the School, and the certificate of Public Health (C. P. H.) is to be signed by both President Lowell and President Maclaurin.

The object of this school is to prepare young men for public health work, especially, to fit them to occupy administrative and executive positions such as health officers or members of boards of health, as well as secretaries, agents, and inspectors of health organizations. It is recognized that the requirements for public health service are broad and complicated, and that the country needs leaders in every community, fitted to guide and instruct the people on all questions relating to the public health. To this end, the instruction of the new school will be on the broadest lines. It will be given by lectures, laboratory work, and other forms of instruction offered by both institutions, and also by special instructors from national, state, and local health agencies.

The requirements for admission are such that graduates of colleges, or technical and scientific schools, who have received adequate instruction in physics, chemistry, biology, and French or German, may be admitted to the school. The medical degree is not in any way a pre-requisite for admission, although the Administrative Board strongly urges men who intend to specialize in public health work to take the degree of M. D. before they become members of the School for Health Officers.

The Administrative Board which will conduct the new school is composed of Professor William T. Sedgwick, of the Massachusetts Institute of Technology; Professor Milton J. Rosenau, of Harvard; and Professor George C. Whipple, of Harvard. Professor Rosenau of Harvard has the title of Director, and the work of the school will be under his immediate supervision.

The Shenandoah Valley Medical Society,

At its annual meeting held in Woodstock, Va., in August, re-elected Dr. Wm. P. McGuire, Winchester, president. Drs. J. E. Lincoln, Lacey Springs, and W. F. Driver, New Mar-

ket, were elected vice-presidents, and Dr. L. M. Allen, Winchester, was made secretary. Typhoid fever and methods of preventing epidemics of same were discussed, the discussion being led by Dr. McGuire. Upon conclusion of the business session, the visiting physicians were entertained at Hotel Holtzman by the Shenandoah County Medical Society.

Catawba Sanatorium.

It is reported that the waiting list at the Sanatorium is the longest in its history, there being at present the names of more than 100 who have filed their applications for admission. Within a few weeks, however, a new infirmary with accommodations for fifty patients will be opened, and applicants will be admitted with reference to their place on the waiting list, in addition to filling vacancies as they occur upon expiration of the six months' stay of patients already there.

Mississippi Valley Medical Association.

The thirty-ninth annual meeting of the Association will be held at Hotel Grunewald, New Orleans, La., October 23-25, 1913, under the presidency of Dr. Albert E. Sterne, of Indianapolis. Dr. Henry Enos Tuley, Louisville, Ky., is secretary, and Dr. W. W. Butterworth, of New Orleans, is chairman of the Committee of Arrangements. More than fifty doctors are on the Preliminary Program to read papers at this meeting. Attractive entertainments are being planned for the members and ladies accompanying them.

To members and their friends who wish to take an outing during the Fall, an unusual opportunity is offered of a trip to Panama, a steamer having been chartered for the trip, which will leave New Orleans, late in the afternoon of the 25th, after the close of the meeting. As only 85 to 90 passengers can be accommodated, reservations should be made at once. The price from New Orleans back to New Orleans is \$150 a person, which will also include transportation both ways across the Isthmus as well as four days' stay in Panama City. The secretary will give more detailed information to those desiring it.

Congressman Herman A. Metz,

Of the 10th New York District, president of the Farbwerke-Hoechst Company, importers of

Salvarsan, Neosalvarsan, Novocain, etc., has been designated by the Democratic Party for Comptroller of the City of New York. He served in this position with the greatest credit to himself from 1906 to 1910, and during that period he placed the finances of the city upon a firm foundation.

Medical Inspection of Schools.

In an article by Surgeon J. W. Schereschewsky, in *Public Health Reports*, we were astonished to note that out of 78,401 school children examined in New York City in 1906, 56,259, or 71.7%, presented some form of physical defect or disease requiring treatment. In this same paper, he reports that only twenty states have as yet made any legal provision for the conduct of medical inspection of schools, Massachusetts having first adopted such a law in 1906. Virginia and Louisiana are the only Southern States that have fallen in line. This is a matter which States that have not yet taken it up may well give their attention.

The Association of Surgeons of the Norfolk and Western Railway

Will hold their annual meeting at Old Point, Va., October 2 and 3, 1913, under the presidency of Dr. Jos. A. Hall, of Cincinnati. Dr. Thos. D. Armistead, of Roanoke, Va., is Secretary-Treasurer. Although the program has not yet been issued, a pleasant time is anticipated by all who expect to attend. Dr. Jos. A. Gale, Roanoke, Va., is Chief Surgeon.

Recent U. S. Navy Changes in Virginia.

Medical Director C. T. Hibbett, detached from Norfolk Hospital, August 28, to home to await orders, and

Medical Inspector G. Pickrell ordered from Annapolis to Norfolk Hospital.

Dr. and Mrs. William Roane Aylett,

Newport News, Va., have returned home after a motor trip through the Valley of Virginia and a visit in the Northern part of this State.

Dr. W. B. Dodge,

Of Stuarts Draft, Va., recently had a miraculous escape from death, when his automobile turned over as it struck a ditch, and he was caught under it. He suffered a dislocated shoulder and a number of bruises and scratches.

Removals in Richmond.

Dr. John N. Upshur has removed his office and residence to 1103 West Franklin Street.

Dr. Julian W. Sloan has moved to 1513 Grove Avenue.

Dr. W. Armistead Gills has moved his office and residence to 1639 West Grace Street.

Lane Medical Lectures.

The fourteenth course of these lectures was delivered by Sir Edward A. Schafer, of Edinburgh, in Lane Hall, Medical Department, Leland Stanford, Jr. University, San Francisco, September 3, 4, 5, 8 and 9. The lectures, which were on internal secretion in general, the thyro-parathyroid glands, adrenal glandular apparatus, pituitary body, and the influence of internal on other secretions, were illustrated by lantern slides.

American Public Health Association.

Drs. Ennion G. Williams, Allen W. Freeman, E. C. Levy, of Richmond, W. B. Foster, Roanoke, and P. S. Schenck, Norfolk, were among the Virginia doctors to attend the above Association at its forty-first annual meeting in Colorado Springs, Colorado, September 9-13. Mr. Rudolph Hering, of New York City, was president.

The United States Civil Service Commission,

Washington, D. C., announces an open competitive examination for male professor of pharmacology, open to citizens of the United States, under 45 years of age. From successful applicants, certification will be made to fill a vacancy in the Hygienic Laboratory, Public Health Service, Washington, at a salary of about \$4,500 a year, and vacancies as they may occur in positions requiring similar qualifications. An educational training similar to that required for a Ph. D. degree from a university of recognized standing, and not less than 10 years' experience in pharmacology and closely allied subjects since, are prerequisites for consideration for this position. Form 1312, which may be obtained from the Service in Washington, should be properly executed and filed with the above Commission, not later than September 15, 1913.

There will also be an open competitive examination for chief bacteriologist, men only, to fill a vacancy in the Bacteriological Laboratory of

the Bureau of Chemistry, Department of Agriculture, Washington, at \$3,500 a year, and vacancies requiring similar qualifications as they may occur. Applicants should be citizens of the United States, between 30 and 50 years of age, and their educational training equivalent to that required for a M. D. or Ph. D. degree from a college or university of recognized standing, with at least seven years' practical experience in bacteriological and pathological work involving original investigations since receiving such degrees. Application should be made of the above Service, for Form 304, and properly executed and filed with the Commission by October 6, 1913.

U. S. Public Health Officers in Virginia.

Surgeon T. Clark was directed August 20, to proceed to Upperville, Va., for the purpose of making a diagnosis of a suspected case of smallpox and for conference with local health authorities.

Board of Medical Officers convened to meet at Norfolk, August 25, for the physical examination of Second Lieut. M. S. Hay, U. S. R. C. S., to determine his fitness for promotion. Detail for the Board, Surgeon C. P. Wertenbaker, chairman, and Acting Assistant Surgeon, H. C. Bradford, recorder.

The Medical Society of the State of Pennsylvania

Will hold its annual meeting in Philadelphia, September 22-25, with headquarters at the Bellevue-Stratford Hotel. Dr. Lewis H. Taylor, Wilkes-Barre, and Cyrus Lee Stevens, Athens, are president and secretary, respectively.

The American Association for Study and Prevention of Infant Mortality

Will hold its fourth annual meeting in Washington, D. C., November 14-17, Dr. L. Emmett Holt, New York, presiding. Dr. Samuel S. Adams, Washington, D. C., is chairman of local Committee of Arrangements. The various sections in which papers will be presented include Nursing and Social Work, Pediatrics, Eugenics, Obstetrics, Public School Education for Prevention of Infant Mortality, and Vital and Social Statistics. Further information may be obtained from the Executive Secretary, 1211 Cathedral Street, Baltimore.

The New York and New England Association of Railway Surgeons

Will hold its twenty-third annual session at Hotel Astor, New York City, October 22, Dr. John W. LeSeur, of Batavia, N. Y., presiding. Dr. George Chaffee, of Brooklyn, N. Y., is secretary. A very interesting and attractive program has been arranged, an especially interesting feature being the "Address in Surgery" by Dr. Hugh H. Young, Baltimore. Railway surgeons, attorneys and officials and all members of the medical profession are cordially invited to attend.

The Society of Medicine,

Composed of the doctors in charge of the laboratories of radiology and electro-radiotherapy, of des Hopitaux de Paris, have arranged to have a theoretical and practical conference on these subjects twice a year, in November and May. The first conference will be held November 23-December 2, 1913, in the Amphitheatre de l'Hopital de la Pitie, 83, Boulevard de l'Hopital. Dr. Delherm, at this last address, can furnish further information.

Cottage Settlement for Consumptives.

Mrs. Thomas F. Ryan, of Nelson County, Virginia, and New York, has purchased 100 acres near Sloatsburg, N. Y., where she will have built a cottage settlement for tuberculosis patients in Rockland County, N. Y. It will be known as "Loretto" in memory of a dead daughter of Mrs. Ryan's.

Dr. Arthur D. Hirschfelder,

Baltimore, formerly connected with Johns Hopkins Medical School, has been appointed professor of pharmacy and director of the pharmaceutical department, in the University of Minnesota, at Minneapolis.

Poliomyelitis in Virginia.

Three cases of poliomyelitis were reported September 1, in a suburb of Salem, Va.

The Virginia Health Department

Has issued its annual warning against diphtheria, and states that, as in the past few years, it is ready to furnish antitoxin to anyone who needs it, at 40 cents the thousand units, plus nine cents for each syringe.

The report that several children in Bristol

contracted typhoid fever as a result of anti-typhoid vaccination has been investigated by the Board. It was found that the germs were present in the children before the vaccine was administered, and the four who received the vaccination before taking their beds had very mild symptoms, while the unvaccinated child has had the disease in a severe form.

Apparent Cure of Two Lepers.

Two cases of leprosy in the Philippines, according to *Public Health Reports*, have been pronounced apparently cured and discharged from the San Lazaro Leper Hospital. In both cases the vaccine treatment was first used without any apparent change in condition, and this was followed by crude chaulmugra oil by mouth. Nausea resulting from this, hypodermic injections of chaulmugra oil combined with oil of camphor and resorcin were begun. The first of these cases was admitted to the hospital May 29, 1909, and the second, January 7, 1910. On June 11, 1913, both cases were discharged on probation.

Obituary Record.

Dr. James Porter Williams,

Formerly a practising physician in this city, but more recently in Princeton, W. Va., died at Catawba Sanatorium, Va., August 20. He was born in Pearisburg, Va., February 21, 1873, and received his medical education at the University College of Medicine, Richmond, from which he graduated in 1897. He had been a member of the Medical Society of Virginia since 1901. His wife, one son and a large family connection survive him. The interment was made in Pearisburg, Va.

Dr. Samuel Rozier Catts

Died at the home of his father in Alexandria, Va., August 29, as a result of pulmonary trouble contracted while a surgeon in the army, having at various times been connected with different post hospitals. He was born in Fairfax County, Virginia, September 19, 1877, and upon completion of his academic course, studied medicine at the Baltimore Medical College, graduating in 1906. He was a member of the State and local medical societies, and was a Mason and Knight Templar.

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Original Communications.

MENORRHAGIA AND METRORRHAGIA—SUGGESTIONS AS TO TREATMENT AND REMARKS ON RECENT CLAIMS FOR RADIO-THERAPY.*

By WALTER B. CHASE, M. D., Brooklyn-New York City,

Consulting Obstetrician and Gynecologist, L. I. C. Hospital, Nassau Hospital, and Jamaica Hospital;
Visiting Surgeon, Bethany Hospital, etc.

As preliminary to this discussion, it is assumed that every woman has a menstrual habit, peculiar to herself, both as to the quantity of blood lost and the time intervening between its re-occurrence. This phenomenon is usually rhythmical, but within certain limitations; some variation may occur without passing from the physiologic to the pathologic. By these standards she must be judged.

It is not within scope of this paper to enter upon a distinction between the menstrual and normal blood, nor to discuss the technical or clinical differences between metrorrhagia or menorrhagia. It is also assumed for purposes of diagnosis and treatment that these subjects have received due consideration, and that accidental or co-existing causes for debility and anemia have been given due consideration. In particular, differentiation must be made between the direct anemia due to uterine bleeding, and that arising from other co-existing causes. Again, it must be clearly recognized that varying degrees of resistance from loss of blood, either acute or chronic, explain the reason why the health of one woman suffers more quickly than another, and why convalescence is more rapid in one than another. In other words, no woman is to be judged by comparison with any

other woman, *per se*, but by her own individual standard. With such clearly defined notions, the individual case should be studied so that tenable and safe deductions may be formulated.

Where the twenty-eight day type of menstruation is constitutionally established, variation from such a standard, save for pregnancy, requires careful study. When distinctively due to shock or emotional causes it is not often a matter of moment, and recovery is usually spontaneous. The same rule cannot be employed with most other variations from the individual type. It may be stated as a general principle that progressive shortening of the normal menstrual type from 28 days to a shorter period is of sufficient importance to require investigation, and in particular when the menstrual loss increases in amount. Again, those irregularities in which the inter-menstrual period is lengthened, or in which extremes of fluctuation follow each other, both as to time and quantity, are entitled to thorough differentiation.

No effort will be made to discuss all forms and features of uterine hemorrhage, as it would be outside the scope of this paper. For this reason the hemorrhages due to miscarriage and at term have been considered but incidentally.

I shall not encroach upon your time to depict in detail the symptoms dependent upon uterine bleeding, which produce varying degrees of temporary impairment or that lead to confirmed invalidism. The usual pallor, muscular weakness, lack of easy mental application, nervousness so often associated with irregular cardiac manifestations, sleeplessness and final exhaustion, complete the picture which is too frequently witnessed and too indelibly stamped on our minds to require repetition. Its approach may be slow or rapid, its history fluctuating, its outcome dependent on wise man-

*Read before the annual meeting of the Medical Society of the State of New York, April, 1913, at Rochester.

agement, and the individual resistance of the patient.

Among the etiologic factors having an anatomic-pathologic basis are uterine myomata, degenerative chronic endometritis, peri-uterine inflammations of septic origin, and those incident to mis-carriage and subinvolution after term, uterine displacements and varying pelvic adhesions. Those classified under the head of systemic origin include purpura, malaria, nephritis; those dependent on absence of normal plasticity of the blood, general arteriosclerosis, and high blood pressure from varying causes, and from the exhausting influence of acute and chronic illness. Yet another class, of reflex origin, is seen at puberty, local shock, and those bleedings incident to powerful emotion.

The proper management of these cases, both acute and chronic, is hygienic, medical and surgical. The hygienic comes first in importance and is imperative during the entire period of treatment. First, efforts should be directed to the removal of all known predisposing or exciting causes, a regular wholesome habit of life, including proper food, exercise, diversion and rest, with as much exercise in the open air as is admissible, and living and sleeping when in doors in well ventilated apartments. The diet should be carefully guarded and a properly balanced ration enter into daily menu; avoidance of much tea and coffee, which may be excluded altogether, and the use of pure water must be insisted upon. Caution must be continuously exercised against excessive fatigue incidental to physical exercise. The magic of change so often seen by removal from the lowland and seashore to the interior at a greater altitude, and *vice versa*, must not be forgotten or neglected. Want of such appreciation deprives many patients of a remedy of great usefulness.

Medical treatment of these cases resolves itself into the employment of those measures which limit uterine bleeding and aid in restoration from the debility incident to its loss. Absolute bodily rest in the horizontal position with the foot of the bed elevated must be enforced in the presence of serious hemorrhage. Everything which contributes to healthy nutrition, secretion and excretion, must be under careful scrutiny, so that balance of normal function is maintained. In chronic cases, alternate rest and gentle exercise may be dictated by the exigencies of the situation.

The drugs are not numerous which exercise a controlling influence on these conditions. Constipation must be overcome by diet as far as practicable. Aloes and all vegetable cathartics are hurtful. Mild salines, phenolphthalein and olive oil are preferable. For bleeding phthalate of cotarnin, opium, hydrastinin and ergot stand out as most useful. Those articles of the materia medica which exercise a controlling influence increasing or diminishing blood pressure have a well-defined, but limited field of usefulness. Cotarnin has demonstrated its adaptability in varying forms of hemorrhages both organic and symptomatic. The claim for its efficacy made by different observers appears in all kinds of hemorrhage, irrespective of fixed anatomic and pathologic lesions,—those due to inflammations and resulting degenerations of the uterine mucus membrane, those attending abortion, in myoma, in bleeding from cancer of the uterus, and from disease of the uterine appendages. Apparently its efficacy is not dependent on its power of varying to any perceptible degree the blood pressure; hence its wide adaptability. The dose is from one-half to one grain or more once in four or six hours. Ergot in selected cases has valuable hemostatic properties, but it must be used with discrimination in myomata, and its influence upon the vasomotor system remembered. An old, but almost forgotten remedy, which has peculiar though limited sphere of usefulness is opium. To be administered with best results an assayed product must be employed or morphine used hypodermically. When other remedies fail it may become the sheet anchor of the patient. When these hemorrhages are associated with nervous perturbation and prostration, its temporary use will often tide the patient over a troublesome crisis, but for a continuous use it is not admissible, save in hopeless cases, or those which are inoperable, or if operable, when surgical interference is refused.

Medical treatment for restoring the blood dyscrasia and stimulating the vital powers is of great importance. Organic iron in certain cases is very useful, in some inert, and in others injurious. It must be tested in the individual case to determine its adaptability. Diminished coagulability of the blood following its profuse loss is often a matter of grave import. The administration of calcium salts is indicated if the coagulation time is diminished, of it may be corrected by normal human or horse serum used

by intravenous injection. Drugs which act as vaso-motor constrictors, if used at all must be administered with great caution. Any introduction of normal salt solution intravenously should not be ventured upon in the presence of uterine hemorrhage during active bleeding, the only exception being an overwhelming loss of the circulating media.

The claim of remarkable efficiency of pulverized aluminum in arresting the hemorrhage dependent on gastric ulcer might on theoretical ground be applied to uterine hemorrhages dependent on detached placenta, or other local intra-uterine bleeding from open blood vessels.

The albuminate of the iron is most easy of assimilation, and the administration of arsenic if tolerated is often effective. In cases where there is high nervous tension and reflex excitability, the bromides, particularly the strontium salt, is of great value, and may be advantageously combined with valerian or asafetida—remedies too often neglected.

Surgical treatment is of the greatest importance in many cases, and is often resorted to late when it should have been the first remedy employed. The whole group of myomata comes under this head. It is not so much their size as their location which demands interference; though in no case should they be allowed to attain any considerable proportions. The variety most productive of hemorrhage is the submucous. To temporize with this class is worse than folly, and delay may be fatal. Early hysterectomy should be resorted to before the state of exhaustion supervenes, save in cases where enucleation is indicated. Wisely done the mortality is small. Myomectomy has a field of usefulness in carefully selected cases. The degenerative changes of the endometrium from varying causes require early curettage, sometimes repeated. Hemorrhages persistent in appearance, following labor or mis-carriage, associated with subinvolution, require careful management. Uterine displacements, particularly retro-displacements, require correction, and the mischievous influences of adhesive lesions of the uterus adnexa must be remembered; with salpingitis it is a fruitful cause of troublesome hemorrhages. Uterine polypi, undiscovered usually because unlooked for, have played an important role in the factors which make for invalidism. Recently I operated upon a case of fibroid polypus, the size of a hen's egg, which had been extruded through the cer-

vix, in which the exhaustion of the patient nearly proved fatal. Convalescence quickly followed. Tamponade in uterine hemorrhages has its uses. When the uterus is not greatly enlarged, with normal mobility, the pushing it up as far as possible and retaining it there by tamponade of the vagina produces a flexion of blood vessels supplying this organ and acts as a powerful hemostatic. Experience demonstrates that many of the intractable hemorrhages are amenable to surgical interference only, and from this cause springs most of the avoidable cases of chronic invalidism which should never have appeared. In the ulceration attending malignant disease of the cervix, the thermocautery repeated as often as indicated is a palliative remedy of conspicuous and unequalled value. As local styptics, dilute acetic acid and acetone are among the best. Followed by persistent use of radium, this treatment, combined or alternated, accomplishes results unapproached by any other medical or surgical treatment with which I am familiar. Failure to rightfully apply radium, I am persuaded, is responsible for many of these failures. To secure the best results, it should be used on alternate days from fifteen minutes to six or twelve hours, according to its degree of radio-activity. Disappearance of hemorrhage, healing more or less complete, subsidence of cachexia, and return to more normal conditions of health, have attended their combined or alternate use. I have not employed radium in non-malignant cases, but information is not wanting as to its efficacy.

No time is so opportune for treatment as in the incipency of uterine hemorrhage. Appearing at or near the climacteric, it is often ignored with the assurance of the medical adviser that it is only the change of life, and that nature is competent to carry the patient to a safe termination; or the case is declared inoperable and with this assurance, further remedial measures are abandoned. The role which uterine cancer plays in case of metrorrhagia is worthy of notice, as related to its great frequency. A known fact disclosed by the last census shows that one woman in every fourteen dies of cancer, and above the age of 45 the ratio is one to nine. It therefore follows that the possibilities are large that in a given case over 35 years the disease is malignant.

An infrequent and intractable form of uterine hemorrhage is found in deciduoma malignum. When diagnosis is established by laboratory

diagnosis prompt hysterectomy is indicated. One other cause of menorrhagia is arteriosclerosis of the uterus. At the best, its diagnosis is difficult and that by exclusion. During the present year Dr. Victor A. Robertson reported to the Brooklyn Gynecological Society its presence in a married woman near the menopause, after hysterectomy. The laboratory findings were full and conclusive. The patient recovered.

Radical change in the treatment of hemorrhages dependent on myomas is seeking to replace the present method. In Germany and at other Continental clinics, in the treatment of these persistent hemorrhages due to myomata and those in which pathologic conditions are lacking or are not pronounced, remarkable curative results are claimed to attend the use of the X-ray.

A work by Gauss and Lembecke—"Röntgentiefentherapie" (Deep X-ray-therapy), Its Theoretical Principles and Its Clinical Results; Berlin & Vienna, 1912—gives an account of the work with the X-ray on myomata, large and small. Myomatous, slightly enlarged, hard uteri, and metropathia hemorrhagica in which no pathological findings were discoverable with the curette, and two or three suspicious carcinoma-like conditions during the period of several years are discussed, with account of 205 cases treated. The increase of deep radio-therapy, by separating the soft from the hard rays, leads to greater efficacy and safety. With proper filtration the decrease in the injury to the skin goes hand in hand with its therapeutic influence on deeper structures. The Röntgen therapy, formerly primitive, now built up in detail, is placed in competition with the operative treatment in cases of myoma and metropathy. Patients whose strength has been much reduced by repeated and continued hemorrhages are especially adapted to this treatment, and by it the mortality of the myoma operation is greatly reduced. Operation often requires six or seven weeks to restore to sufficient health and strength to go back to work. Röntgen therapy requires 8 weeks lapse of time while being treated, but does not keep patient from work on days between treatments. When strongest operatives and filters are used, the reactions previously noticed are not seen. Emphasis is given to the fact that diagnosis requires complex rays—therapy homogeneous rays. The end results with intensive therapy

appeared oftener and more quietly, and were more lasting, i. e., among the 102 patients treated in the last year and a half by this method there were no failures. The time consumed by the old method without filter averaged five treatments in eleven weeks (with aluminum filter, 3 sittings in six weeks). Shrinkage of the myoma, much doubted by many, was so obvious that not only the physician but the patient observed it. Out of 36 myomata examined 9 months after treatment, 20 had disappeared.

The general feelings of the patient suffered little during the intensive therapy. One can hardly speak of an inordinate demand on her strength,—many patients read; others often go to sleep during the treatment. (I have repeatedly witnessed this sedative influence from which the patient irresistibly went to sleep and awoke refreshed.) Reaction from this treatment consists, when present, of headache, backache, or nausea, and is most apparent after large doses. At the worst, it is not comparable with the painful symptoms accompanying operation. Symptoms of the menopause, which indicate approach of the cure, are less persistent than after operation. The crowning superiority of intensive therapy is an alleged smooth convalescence, obvious to the patient and the attendant. It will be noticed that in hysterectomy for myomas the cure is dependent on the removal of diseased structure; by the Röntgen therapy the pathologic bleeding is overcome, sometimes attended with diminution of the myomatous growth, but not necessarily dependent on its disappearance.

Werner regards the action of the X-ray as an influence on the chemistry of the body cell. He expresses the belief that its chief attack will probably be the ovaries, though their exact location may not be known. There can be no question of the intensive influence of the X-ray on the function of the ovary and, if carried beyond a certain point, results in sterility. My associate, Dr. Shoop, reports treating a case of metrorrhagia near the menopause in which after 19 sittings of an average of 22 minutes each menstruation disappeared. Analogous to this is the well recognized sterilizing influence on the male whereby raying the testes induces sterility.

The potency of Röntgen therapy, as seen by its usefulness when wisely applied, seems to promise valuable therapeutic results. Those

methods whereby the X-ray therapy has been robbed of its deleterious influences arises, first, from separation of its hard and soft qualities, with accurate knowledge of their useful and hurtful qualities. This has been accomplished by improved tubes and careful filtration through aluminum and leather. How much influence this will have on American practice remains to be seen.

There is another feature of the Frieberg clinic to which I will allude briefly, viz., the cross-fire principle. The tube is placed on the right and left side of the abdomen at an appropriate oblique angle, the ray passing through the vagina and ischiatic foramen before which the ovary often lies. The skin of the abdomen is divided into fields so that the direction of the ray will reach both the ovary and the tumor itself; and the secondary rays as shown perhaps act on the ovaries.

I desire to express my obligation and my appreciation for the monographic review from *Surgery, Gynecology, and Obstetrics*, from which I have quoted freely, and to the translation of the text from Gauss and Lembecke by Dr. Fred. J. Shoop, and to his painstaking observations which seem confirmatory of the teachings of "Röntgentiefentherapie."

In conclusion, I beg to say that in this brief review I have endeavored to give the views of some German authorities a fair and unprejudicial consideration, and while I never was an enthusiast on electrical-therapy, I am convinced by these statements and some personal observations it is worthy of trial. But, whether it will supersede hysterectomy, the mortality of which is small, time and experience alone can determine.

1050 Park Place.

SOME PHASES OF DIABETES MELLITUS.*

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and

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Speaking of Pavy and his work, Sir William Gull asked: "What sin has he committed, or his father before him, that he should be condemned to spend his whole life seeking for the cure of an incurable disease?" Pavy is dead and the cure of diabetes not yet found.

The mass of data bearing on the subject is but poorly understood. It awaits interpretation and further exploration. But we have at least reached a point where Pavy's faith appears in better grace than Gull's doubt.

In 1889, von Merring and Minkowski showed that extirpation of the pancreas in dogs invariably produced diabetes. Later it was found that no less than nine-tenths of the gland must be removed in order for sugar to appear in the urine. Ligation of the pancreatic ducts is less effective in producing glycosuria or hyperglycemia. Opie and others have demonstrated that the Islands of Langerhans show pathological changes in a large majority of cases of diabetes in man. The conclusion is drawn that the pancreas is the organ chiefly at fault in most cases; that the trouble lies not with the secretion discharged through the pancreatic ducts, but with an internal secretion furnished chiefly by the Islands of Langerhans.

It is easy to overlook the importance of the muscular tissues in this connection. In glycogenic content they are quite comparable to the liver. More recently the muscular system has been accredited with a glycolytic enzyme or hormone which seems to demand the co-operation of a substance of the same order furnished by the pancreas. Thus, according to Cohnheim, muscle juice alone has no glycolytic effect. If, however, expressed pancreatic juice in the proportion of 1 to 75 of muscle juice is used, the result is a rapid breaking down of sugar. Carried further, the experiment shows the inhibitory power of the thyroid gland over the pancreas. For, if thyroid extract be added to the mixture already described, the glycolytic activity of the muscle and pancreatic extracts is markedly reduced. This last observation is thoroughly in accord with the increased sugar tolerance in myxœdema. "It is almost impossible to produce glycosuria in a previously thyroidectomized animal." (von Noorden). Conversely, hyperthyroidism is not infrequently associated with glycosuria, and cure of the thyroid condition results in righting the metabolic error.

With respect to carbohydrate metabolism, the posterior lobe of the pituitary body is the analogue of the thyroid gland. Hyperfunctionation produces glycosuria. The varied intra-cranial conditions characterized by excretion of sugar are explained by Cushing as manifestations of dyspituitarism. The converse holds here again,

*Read before the Richmond Academy of Medicine and Surgery, June 10, 1913.

and hypopituitary conditions are characterized by high sugar tolerance.

Adrenalin solution painted over the pancreas produces glycosuria; instilled into the eye of de-pancreatized animals, or diabetics, it dilates the pupil. In normal animals this effect is not produced. Injected subcutaneously or intravenously, in sufficient dosage, sugar is excreted in the urine.

The other recognized ductless glands seem to be of less significance. The thymus and parathyroids do not occupy positions of any great prominence in the literature of the subject. The parathyroids, however, are apparently opposite to the thyroid in their influence on the metabolism of starch. The sexual glands may have a more direct bearing than we now appreciate. It is at least interesting to note the increased carbohydrate tolerance as expressed by the gain in weight after the menopause and the adiposity of the sexually impotent among the males.

And yet after all is said, the essential factor in diabetes is a special form of pancreatic insufficiency, whereby the liver gets out from under control with reference to carbohydrate metabolism. Whatever influence is exerted by other internal secretions, they must measure strength with the pancreas as the guard at the hepatic door. Given a diseased pancreas, its burden may be definitely increased by its physiological antagonists. Without disease of the pancreas the glycosuria is transitory. Such seems to be the consensus of opinion.

The part played by the liver in the normal metabolism of carbohydrates is fairly understood. There is, however, conflicting opinion as to whether in diabetes the real difficulty is: (1) an inability on the part of the liver to transform sugar into glycogen and store it up; or (2) whether sugar production by the liver is at a rate faster than the body tissues, especially the muscles, can utilize it. There is evidence from good authority in favor of each view, and as far as we can see the two are not essentially incompatible. At any rate, it is known that the glycogenic content of the liver is diminished and the sugar content of the blood increased. When the hyperglycemia reaches a point above 3 in 1000 glycosuria results.

In view of the apparent direct relation of the pancreas and liver with the causation of diabetes, it is indeed strange that gross disease of

these organs is rarely associated with glycosuria.

Without entering into the chemistry of the metabolic processes, it is of practical importance to appreciate the sources of the sugar in the urine and of the organic acids that result in coma.

The component parts of ingested food and of the body tissues are called upon in the same order. But, broadly speaking, the body tissues give in to these demands only upon exhaustion of the material furnished in the food supply. The chief source of sugar, of course, is the carbohydrates. Next comes the proteids. According to Falta, the protein equivalent of one gram of N, i. e., 6.25 grams proteid, has a sugar producing capacity of 3.65 grams. But the opinion generally held is that "the effect of the proteins is not so much that of a source of sugar as it is that of a bellows upon the fire." (von Noorden). According to the same authority, the formation of carbohydrates from fats is a facultative process and occurs only as an act of necessity when other material is unavailable.

Seeking the origin of the acetone bodies, or acids, they are seen as intermediary products in the normal metabolism of fats. And in the clinical condition known as "acidosis" it is the fats from which they are chiefly derived. Just why they are pre-eminently a complication of diabetes is probably expressed in the phrase of Rosenfeld:—"The fats (normally) are burned, as it were, in the fire of the carbohydrates." Since, in diabetes, the carbohydrate fire is low, especially on a carbohydrate-free diet, the oxidation of the acetone bodies is likewise below par, and in severe cases does not proceed beyond B-oxybutyric acid. This acid is admittedly the cause of coma. It is the mother-substance of diacetic acid and the grand-mother, so to speak, of acetone. It is readily apparent, therefore, that these substances appearing in the urine are relatively significant in the order named.

Next in importance to fats in the production of acetone bodies are the proteids. This role of proteids, as well as their influence in the production of carbohydrates, is clearly expressed by Chittenden and Mendel. "The removal of nitrogen from protein leaves a non-nitrogenous rest of great fuel value. The latter, in all probability, is converted into fats, or, at least, into carbohydrates, and then becomes subject

to the laws governing the katabolism of these two groups of food products." As has been seen, the relation of carbohydrates to acetone production is not contributory. On the contrary, they exert a controlling influence and constitute the main reliance in combating acidosis.

Diabetes is on the increase. The United States census for 1880 showed a mortality of 2.8 per 100,000 population. In 1900 the death rate was 9.3. In Richmond from 1890 to 1900 the maximum deaths from diabetes for any one year was four. Since 1907 the average mortality has been over 14 per year. Practically all statistics show the same tendency.

During the past eighteen months we have had twenty-one cases of diabetes, and eight cases requiring to be differentiated from that condition. While this number is, of course, too small to serve as a basis for any conclusions, we have been interested in applying to them the observations of others in connection with the subject.

The disease is generally supposed to be quite rare among negroes. Fletcher, however, thinks that, in Baltimore, whites are only twice more liable than the colored. Three of our cases were negroes. One case was a Jewess. Wallach states the susceptibility of the Jewish race at 6 to 1 of other races.

Fitz and Joslin found heredity to play a role in 23.8%. Foster has collected 135 cases occurring in 51 families. In our series there were a brother and sister of non-diabetic ancestry; a girl who had an aunt and first cousin, diabetics; and a boy who had lost two brothers from the same disease.

The youngest case was a male infant two and a half years old. There were five under 10 years of age, but the incidence was greatest in the sixth decade, which agrees with the general experience. Thirteen were males; eight were females.

The only case in which infection seemed to play a part was that of a 10 year old girl who had had pyelitis six months previously, and each recurrence of sugar, at intervals of one to nine months, followed attacks of tonsillitis.

The influence of work and mental strain was well illustrated in the case of a banker. Our ability to control the elimination of sugar was almost directly proportional to the freedom from responsibility he would allow himself.

It is generally recognized that diabetics do

best in warm climates. We are inclined to think the result may be better expressed by saying that a sudden drop in temperature is an unfavorable circumstance. Busquel found an increase of sugar of approximately 35% in each of three patients subjected to temperature lowered from 68° to 51° F. Our series furnishes a suggestive incident. On March 27th of this year, we had under daily observation three diabetics, each having become sugar-free quite recently. On that day the temperature suddenly dropped from 73 to 39 and remained low for the two days following. On the 28th and 29th, each of these three patients had a return of sugar without any variation in diet. In two cases we made no change, hoping for a moderation in temperature. In the third, a child, we were afraid to take chances and drew in the ropes. On the 31st the temperature had moderated, with an immediate disappearance of sugar from the urine of each of the three patients. A quite similar occurrence followed in April.

One of the most vexing complications we have met has been pruritis vulvae and balanitis. In not a few cases this is the earliest complaint. Occasionally it has suggested examination of the urine especially for sugar, in men as well as in women.

Great emphasis has been laid upon tuberculosis as a complication. Montgomery states that out of 355 autopsies collected from the literature since 1882, 138 (nearly 40%) revealed pulmonary tuberculosis, mostly in an acute form. We doubt whether this represents the clinical experience of many. We have not encountered tuberculosis more frequently in diabetics than in patients of lowered vitality from other causes. Diabetic coma, first and foremost, and septic infections to a lesser degree, are the complications we have most frequently met.

None of the cases presented signs of lesion of the nervous system or of the ductless glands. In view of the accepted pathology of the disease, we must conclude that in every case the essential factor was the pancreas.

The results in these cases may be briefly stated. Two of the five children progressed to a rapidly fatal result. One colored girl has been lost sight of. The fourth, a very severe case, seen first in January, is apparently as well today as at that time, though we have never

felt hopeful as to the outcome. The last has been kept pretty well under control all the time during the year and a half since the disease manifested itself.

On the other hand, all of the patients developing diabetes after reaching middle life have done quite well under moderate control. Most of them seem likely to live out nearly, if not all, of their natural span of life.

In the young adults, the results have not been uniform. Two have died. Others have proven fairly amenable to treatment. On the whole, the gravity of the condition in childhood, and its comparative harmlessness with increasing age, when controlled, has been well illustrated throughout.

We have been particularly interested in the eight cases which illustrate some of the causes of transitory glycosuria and, in some instances, led to a mistaken diagnosis of diabetes.

Two cases were plainly alimentary in origin. One followed an excessive carbohydrate diet in the treatment of nephritis; the other was the result of the ingestion of one gallon of ice-cream in one day by a gentleman old enough to know better. He was 65 years of age.

Three of these patients had been diagnosed as diabetics, though no reducing substance whatever could be found when seen a little later. Two had been declined for life insurance on this ground. They may have been temporary glycosurics, or some substance other than dextrose may have accounted for the reaction.

Another was a case of angina pectoris presenting a transitory glycosuria. We were at a loss to know whether this resulted from the intense dyspnea or the amyl nitrite or the morphia that was given, or from all three.

Still another instance occurred, and recurred the second time, in a case of obstinate brachial neuritis. It may develop that he has beginning diabetes.

Two cases showed a distinct, but atypical, reduction of Fehling's solution. The urine was non-fermentable and the patients failed to show any symptom of diabetes. The reaction in one was attributed to excessive uric acid, and in the other to conjugate glycuronates.

No preaching is necessary here. The embarrassment attendant upon having told an intelligent layman he is suffering from diabetes when he is not, need not be dilated upon. The only safe course is to establish upon this shoal

two lighthouses: the reaction must be persistent; and the urine must be fermentable. If there is any irregularity in the reaction, we should stop and confirm or disprove the suspicion. In using Fehling's solution, if the reduction is delayed; if it requires an excessive amount of urine; if it is off-color, especially a pale greenish-yellow; if a white fluffy precipitate appears before the more typical change; or if the solution takes on a yellowish-brown color, clear before becoming opaque, then withhold the diagnosis of diabetes until the presence of a persistent fermentable reducing agent in the urine has been demonstrated.

Finally, we must bear in mind that dextrose is not the only fermentable sugar; and again, that glycosuria, at first transitory, may be the fore-runner of a true diabetes.

The treatment of diabetes is not essentially different today from what it was 100 years ago. The cardinal principle of reduction of carbohydrate intake is the same. It is likely to remain so until a better understanding of obscure physiological processes is reached. At present our brightest hope is in the work being done on enzyme action, the internal secretions and their hormones. But, so far, such practical advances as have been made consist mainly in a better knowledge of the composition of foods and their influence on the body; a clearer understanding of the origin of coma; nicer analytical measurements, and a recognition of the necessity of applying them constantly to each case.

By intelligent feeding the patient must be rendered sugar-free and kept so. It may become necessary at times to relent somewhat to avoid acute danger. But there must be no equivocation or surrender of this as the primary object. Once sugar-free, the carbohydrate tolerance is to be determined at intervals and advantage taken of every gain to supply additional carbohydrates. Such, in brief, is the main chance.

To us strong and in health, it seems almost intolerable to contemplate the strict regime necessary. But we are not diabetics. It is hard for us to understand why a man under sentence of death should strive for a commutation when the alternative is a life-term in prison. Just so, when the diabetic realizes the fate in all probability awaiting him, unless the disease is controlled, he regards more kindly the restrictions imposed upon him. He is willing

to sacrifice something of present comfort for future good. But this is not all. The patient who requires strict regulation for considerable time is nearly always a patient harassed by an intolerable thirst, weakness and general sense of illness. When the glycosuria is somewhat controlled these symptoms abate, and more often than not the sufferer welcomes the restriction in diet for the relief it gives. When to these considerations are added the fact that habit and custom soften the rigor of any hardship, the dietetic management of diabetes assumes a character humane rather than cruel.

By painstaking attention to details, in most cases the dietary scheme may be rendered tolerable and yet safe. Among the best of the tables designed for this purpose are those of Foster, appearing in the *American Journal of the Medical Sciences*, February, 1911, and quoted in *Progressive Medicine*, June, 1912, as also in other reviews.

Admitting, as we must, the force of the injunction to individualize each patient, the habit of mind rebels against the chaos and confusion which a literal acceptance of this dictum involves. The tendency is well expressed in a recent paper by Joslin entitled "Diabetic Standards." Even a slight experience crystallizes involuntarily into the setting up for ourselves certain cases as standards, and by these we measure and compare subsequent cases. The wide range of food products likewise must, for practical purposes, be classified and grouped. Holding, then, strictly to the cardinal principles laid down, there are certain tactical measures that may be recognized, together with their indications.

1.—Test diets. These are designed to determine the gravity of the case and the initial steps in the treatment. They consist of a known quantity of food of known composition, given over a period of three to five days. The results are then determined by quantitative analytical methods. A good diet for this purpose is that designed by Falta, in the *Archives of Internal Medicine*, March, 1909. It is always a temptation to base a prognosis more or less definite on such a test. This, however, is not usually a safe procedure. A patient with a slight sugar output may respond nicely and yet prove quite intractable. On the other hand, a patient obstinate to the early treatment may, a little later,

become sugar-free and his tolerance increase rapidly.

2.—A single standard, as ordinary white bread, should be used for determining the patient's tolerance and improvement from time to time.

3.—A wide latitude is obtainable by the use of a table of equivalents for white bread such as is included in Foster's tables already referred to.

4.—Oatmeal days. The indications for this measure are clearly given by Lampe, as follows: (a) severest diabetes, accompanied by marked acetonuria and sugar excretion; (b) cases in which the most restricted diet and "vegetable days" fail to remove the last trace of glycosuria; and (c) those cases which remain sugar-free on a full protein diet. Voit lays stress on the fact that the "oatmeal cure" is only of benefit if the original technique (of von Noorden) is exactly carried out—first, a withdrawal of carbohydrate; secondly, vegetable days; thirdly, oatmeal days; and again vegetable days. We have found the oatmeal treatment very helpful in some cases.

5.—Green vegetable days constitute a most valuable means of attack on sugar. Frequently eggs may be given with the vegetables, and if acidosis is not threatening, butter may be liberally allowed.

6.—Starvation days. This is an extreme measure to the same end. The patient should be kept in bed in order to reduce to a minimum the demand of the tissues for food. Only water or tea is allowed with the slightest amount of non-carbohydrate solids necessary to prevent actual suffering.

7.—The irritant effect of proteins in some cases must be borne in mind, and, especially, that meats are more irritant than eggs and other proteins.

8.—As a corollary to the foregoing, and by virtue of their caloric value, follows the usefulness of fats, of which butter, olive oil and bacon are most valuable.

9.—It is a disconcerting fact that not every so-called carbohydrate "equivalent," chemically speaking, proves in practice to be equally well borne, nor does every patient bear equally well a given food. The explanation of these facts lies beyond our present knowledge of foodstuffs and metabolism. They but serve to re-emphasize the necessity of treating each case in-

dividually, and minimize the value of any attempt to classify and standardize. As a good illustration of the uncertainty of principles when applied to certain cases may be mentioned the influence of milk. Some cases bear it well, while others of less apparent gravity do poorly on milk. Or the oatmeal diet, in rare instances, gives less favorable results than a diet of potatoes or rice.

10.—Drugs. Codeine should be mentioned as a valuable adjunct in obstinate cases. It may be regarded as a sort of splint on metabolism. The objections to the use of morphine are too obvious to need discussion. Other drugs, including arsenic, the various organic preparations of enzymes and lactic acid, we have not been convinced were beneficial in any case. We would not deny, however, that they may have proved of advantage in other hands. We have probably never reached the heroic dosage of the biological preparations recommended by the manufacturers.

Proceeding along the lines described, in mild cases it is usually possible to pursue the treatment consistently and successfully. In severe cases there is a lurking foe. The danger of acidosis is inherent in the disease and is enhanced by the treatment. This apparent paradox is readily explained. It is only necessary to recall that arrest of the katabolism of fatty acids is an expression of glycogenic poverty of the liver; and in diabetes the liver is notably poor in glycogen. Moreover, in restricting carbohydrate intake, as we do, while the ultimate aim is to increase the glycogen storing power of the liver, the method is one of physiological rest, and the immediate result a further impoverishment. There is practical unanimity as to the treatment of grave degrees of acidosis. Sodium bicarbonate must be given to the limit of tolerance, or until the urine becomes alkaline. If not well borne by the stomach, rectal administration should be resorted to. Given intravenously in coma, we have seen temporary improvement but no lasting good. In addition, the liver must be glycogenized at any cost. To this end carbohydrates are given freely. Oatmeal is especially valuable at this juncture. But usually the resort to liberal carbohydrate feeding amounts to a retreat in order to meet a flank movement. It is not surprising that there exists difference of opinion as to when this sacrifice becomes imperative; von Noorden

thinks the danger is often over-estimated and the retreat begun too soon. The embarrassment is much the same as that which confronts the man who has made an investment in a poorly paying concern. It may be that by increasing the investment a crisis may be tided over and the business made to yield good returns. On the other hand, further involvement may mean only the sinking of more money. It would seem highly desirable to have some exact measure of the acid content of the blood and tissues beyond which it is unsafe to take chances. We can determine quite definitely the excretion of the acetone bodies, and this should always be done. But elimination and retention are not always parallel. Moreover, the complex organism shows a superiority to being bound by mathematical rules. Our best guide is an estimate of the acids in the urine, taken in conjunction with the clinical symptoms. This is not a simple matter. Of course, in the presence of very marked amounts of acetone bodies excreted, we must play safe even though the patient has shown no sign of being overcome by them. But, in general, it is well to remember that when the urine is rendered free of sugar and kept so, acidosis does not develop; that while acidosis is an acute and dangerous condition, diabetes, though chronic, is itself dangerous; and that oftentimes, through courage, the foe in the rear is shaken off without any relenting in our warfare against the old enemy.

RING SCOTOMA FROM CHORIO-RETINITIS SYPHILITICA.

By J. HERBERT CLAIBORNE, M. D., New York, N. Y.

A gentleman, of 46, with a moderate degree of mixed astigmatism, who wears his glasses constantly, consulted me in March, 1912, concerning a blur in his left eye. I had several times changed his glasses for him in the past, and the history of his case showed that the sight in his left eye, while numerically the same as that in his right, was never quite as clear or satisfactory. He stated that the blur had been there for about 6 weeks. The vision was: R. E., 20/40 plus, with correction; left, 20/40 minus, with correction, with difficulty. He stated that the blur did not move about with the movements of the eye, but was rather fixed and appeared to be about in the center of the vision. Owing to the fact that the blur spot

appeared to him so ill-defined and translucent, I requested him to draw it for me on a piece of paper, having made a central point in shape of a cross for him to fix. The drawing herewith shown was made by him, and will be seen to have more or less the characteristics of a ring scotoma. He was able to see fairly clearly through the center, but said the periphery was much more cloudy. As will be observed, the long axis of the scotoma was downwards and outwards.

The cornea and lens were clear; I explored



Drawn by patient, March 29, 1912.

the vitreous with the utmost caution, using different strengths of plus glass, from the background of the eye to the crystalline lens, but no opacity was discovered. The optic disk was slightly blurred, particularly to the outer-side where the vessels were seen with difficulty. There were no changes whatsoever visible at the macula; tension of eye ball normal; radial pulse slightly rapid and tense. Diagnosis of ring scotoma from chorio-retinitis made.

The patient has a sister who has been under my observation for 25 years, and has been totally deaf from her girlhood. He is a high-strung, nervous man, and both he and his sister have to me the appearance of congenital specific infection. Owing to his great sensitiveness, I did not approach the question of having the blood examined. I think the history of the case is a classical one of mild chorio-retinitis syphilitica.

At times these cases show small disseminated yellowish spots with pigmentary deposits in the macula, and sometimes the patients complain of seeing sparks and lights, with diminution in size or distortion of objects. As a rule the progress of the disease is slow and sometimes changes at the macula persist. The diagnosis was made upon the ring scotoma, slight blurring of the optic disk, particularly towards the outer-side, the family history of the patient, his own

appearance, and the result of treatment. He was put upon 5 grains of iodide of potash, three times a day, and at the end of three months he reported to me he could no longer see the scotoma, and his left eye was as good as his right. A recent report to me at the end of 7 months, shows that he had no return of the trouble.

I have a number of times in my life seen cases in which patients complained of ill-defined scotomata in the eye, and I have not been able to discover any change, either in the vitreous or elsewhere. I have treated them, however, with iodide of potash, and they have ultimately recovered. I believe I have missed the diagnosis in a number of such cases, and I am equally certain that others have done the same thing. I am rather inclined to think that the lesion lies in the choroid, and I am quite convinced that the optic neuritis is symptomatic. Syphilitic infections are inclined to select the choroid rather than the retina, though in every case of choroiditis the retina is more or less involved. The remarkable part of this case is the rapid recovery under 15 grains of potash a day.

There is one other condition with which this might be confounded, and that is acute retro-bulbar optic neuritis. This condition, however, is usually ushered in by sudden or rapid diminution in sight in one eye or both, sometimes with pain in the orbit, pain on moving the eye, and pain on pressure of the globe backwards. This forms, of course, striking contrast to the case which I have just described. The points of similarity between the conditions are central scotoma in each, absence of marked ophthalmoscopic signs, optic neuritis more or less pronounced, and the disappearance of the scotoma under treatment or with time. But acute retro-bulbar optic neuritis arises as a rule from cold drafts, influenza, retro-bulbar infections due to inflammation in the collateral sinuses or rheumatism. The diagnosis in the case cited appears to me to be quite certain, and it is reported particularly with a view to increasing caution and care in the examination of cases of this description.

11 East Forty-eighth Street.

It is announced by the Virginia Antituberculosis Association that the red cross seals will again be on sale throughout this State for the coming Christmas.

TWO INTERESTING OBSTETRICAL CASES.*

By BURNLEY LANKFORD, M. D., Norfolk, Va.

The following two cases have recently come under my care, and not being satisfied with my management of them it occurs to me that it may be helpful to report them. If we more often reported the cases with which we have difficulty, and which we recognize that we have not handled brilliantly, doubtless we would derive more benefit than from our successes only.

The first case was that of a woman, 30 years old, small in stature, married 2 years, primipara. Previous health good, no serious illness; breast-fed when a baby (a matter which is mentioned because, as a general rule, adults showing deformed pelvis were not breast-fed babies.) This woman did not consult me until a few days before labor came on, and I did not get her pelvic measurements. This should never be omitted, especially in primipara. Upon falling into labor, she was sent to the hospital, and not being satisfied with the abdominal examination, I had the temerity to make a vaginal one, notwithstanding the cry being raised in certain authoritative quarters against such examinations. The cervix was dilated about 2 inches in diameter. I could make out one extremity, but could not distinguish whether hand or foot, as I was using only one gloved finger, and did not wish to rupture the membranes until a diagnosis of the position had been reached. I therefore withdrew the examining finger, and put on a thinking cap. Having decided that if it were a hand presentation it should be replaced and the head allowed to engage, or if it were a foot the membranes should be ruptured and the leg drawn down, I made another examination with 2 fingers. Although *no* force was used, the membranes ruptured at once and a hand appeared at the vulva; still using two fingers several vain attempts were made to replace the hand and arm but it soon became evident that I could not—in that way at any rate. It seemed best to me at this juncture not to make any more vaginal manipulations because the woman's small size and the mal-presentation made me think that a Cæsarian section might have to be done, in which event vaginal examinations greatly increase risk of the operation. A consultation was held and after measuring the

pelvis and finding the external conjugate to be $6\frac{1}{2}$ inches, we decided that the best chance for both mother and child, as they were already in the hospital and the labor had been conducted under aseptic precautions, lay in the Cæsarian operation. We had the patient taken to the operating room and anæsthetized; meantime we called a third man to pass on the case and operate if necessary. By the time he arrived, dilatation was much more complete and, with the patient fully anæsthetized, he passed the whole hand in. After ruminating thus for several minutes he withdrew, with the opinion that the woman could deliver herself if let alone. He had replaced the arm and brought the head from the left iliac fossa to the brim. Consultant No. 1 and I then examined patient again and we were still very dubious, because we could so easily reach the promontory of the sacrum with two fingers, without introducing the whole hand. However, we bowed to the wisdom of years and superior judgment; the two consultants departed, and 5 hours later (5 hours after full dilatation) the child was born,—weight $6\frac{1}{2}$ pounds. The mother's recovery was uneventful and without abnormal temperature.

The lesson to be learned from this case, to my mind, is, do not rush into operative obstetrics in moderate degrees of contraction until you have given the patient a fair chance; do not make up your mind as to diagnosis and treatment of a doubtful labor case until you have anæsthetized the patient and introduced your whole hand, and arm, if necessary.

The second case is that of a young primipara, 21 years of age, married 2 years. She consulted me about the third month of pregnancy. Her history showed that she had consulted a physician about one year previously for what was undoubtedly beginning pulmonary tuberculosis. She had improved somewhat, but when she came under my care she had a very active process over upper portions of the right lung, was running a daily temperature of 102 degrees, and had troublesome but non-productive cough. It seemed to me from the history that she had rather good resistance, and though the current teaching is, I believe, that such pregnancies should be interrupted, yet in this case they were anxious for a child, and such disposition in a young married woman being so refreshing, I felt like it should be encouraged, and decided, therefore, to put her to bed for a month and

*Read before the Section on Obstetrics of the Norfolk County Medical Society, April, 1913.

see what she would do. She was put in a Walsh window tent, in a sunny, southern room, overlooking the harbor, and given just enough heroin to quiet her cough at night so she could sleep well. Her appetite improved and altogether she did much better than I had dared to hope.

At the time she fell into labor, January 17th, she had been on her feet, with no abnormal rise of temperature, for a month; cough was practically gone and color was good; she looked and felt tremendously better. She called me at 2 A. M. (as usual with such patients!), and vaginal examination at that time showed a breech presentation, dilatation just beginning. I was particularly anxious, as she had been allowed to go to term, that she should not have a long exhausting labor. Breech cases are usually long drawn out and it seemed to me a question of whether I should do a version.—thus having a head presentation that could be rapidly delivered with forceps if she stayed in labor too long,—or whether she should be allowed to continue as she was. The first case reported being still fresh in my mind, and my experience with versions being rather limited made me decide to let her continue with the breech presentation, particularly as she seemed to be in such excellent condition, pulse 74, temperature normal, mental attitude splendid. Version, in my hands has always seemed a dangerous procedure, because it has always been necessary for me to introduce my whole hand into the uterus, and I did not believe I could turn that child without using the whole hand; that would mean rapid dilatation of the cervix, much manipulation, possibly a long anæsthesia, and, all in all, version did not seem to me indicated.

Labor pains began at 12 P. M. (Saturday), at which time the maternal condition was as stated above; the fetal heart rate was about 120, good and strong. The patient was instructed to spend most of her time in bed, contrary to the usual custom of staying on the feet during the first stage. I thought by this to conserve her strength, though it might delay labor somewhat. At 12 M., Sunday, there was no change in general conditions; she was bearing the pains well, and did not seem much fatigued; pains were very light, temperature and pulse same, dilatation a little larger than a 50 cent piece. About 4 o'clock she was given 12 grains of

quinine; some of it was vomited, so that one hour later 12 grains more was given. At 6 P. M., she was having very hard pains, in fact was laboring. Pulse had risen to 84, temperature still normal, while the cervix was dilated to about 2 inches in diameter. I was growing uneasy about her slow progress and about this time called up another doctor and asked him to come over and see her. After talking over her condition, we decided to rupture the membranes, thinking that the buttocks would be driven well down into the cervix by the hard pains she was then having, and thus act as a better dilator than the pouched down membranes. At 8 P. M., two hours later, pulse had risen to 100, and temperature was 99. Dilatation at this time was really complete; we therefore decided that the best course would be to anæsthetize her, complete dilatation, and deliver at once. About 20 minutes were given up to manual dilatation, after which, as the breech would not come down, I endeavored to get two fingers hooked over the groin and thus draw the breech down. No matter how hard I tried, this procedure yielded no appreciable results. I did not use brute force about it for fear of breaking the thigh or rupturing some important structures, but what force I did think safe to use did not budge the baby.

I then tried something I had never done before, applied forceps to the breech, placing the blades over the outer surfaces of the thighs, the tips of the blades hooking up over the crests of the ilia; not locking them too tightly, I made traction when they promptly slipped off. I then applied my own forceps (the first pair being the consultant's) and they did not slip ("every man to his own tools"). I do not believe it wise to use much force in using forceps, believing that if the traction be made in the right directions, much force will *not be needed*, and so with the consultant helping by making pressure over abdomen and with considerable effort (more than I liked), after 15 minutes the breech was down low enough to handle, and the forceps was removed. The perineum began to tear soon after the forceps was first applied, much to my horror! If left to nature, a breech case will deliver itself up to the neck without trouble, but the patient's condition at this time was not any too good and so I thought best to lose no more time. We had considerable trouble in getting the first foot out as the legs

were flattened out along the abdomen, the feet being up over the shoulders. I thought surely I had broken one of the knees as, in getting it out of the vulvar ring, I had to over-extend the leg upon the thigh to such an extent that the bones cracked ominously. Of course by this time both arms were fully extended and I expected another agony in getting them down, but fortunately I was able to sweep first one, then the other down across face and chest, and the delivery of the head was not difficult, though probably too forceful.

I was afraid to look at the perineum, but when I did summon sufficient courage, the sight that met my eyes was enough to justify all my dread! There was no perineum, no sphincter ani, "no nothin'." We had a 60 candle-power electric light bulb with long cord in our obstetrical outfit just for such occasions and it surely came in well now.

While waiting for the placenta to separate, I stuffed some gauze up in the vagina and proceeded to "take stock" of the havoc. The post-vaginal wall had torn through in the mid-line into the rectum, and about $2\frac{1}{2}$ inches up into the rectum. Nine sutures were put in, seven chromic gut, two silk worm gut, using great care that at least two of them, one chromic gut and one silk worm gut, should get a good bite into the retracted ends of the sphincter ani muscle. These ends could be seen on each side of the wound and the muscle would twitch when the torn ends were touched with needle holder. The placenta came away entire, with no trouble, *mirabile dictu!*

The remarkable part of this case to me is that, with the exception of $99.2-5^{\circ}$ on the fourth day, this woman had no abnormal temperature during the whole puerperium,—at least she never had any when the King's Daughters' nurse made her twice daily visits, nor when I would see her. She was catheterized every 12 hours for seven days. Bowels were not allowed to move until the end of the fifth day, at which time, with an oil and soap sud enema, there was very little pain. The nurse reported that some of the water that was put in through the rectum came back through the vagina, which meant that I had not sutured high enough up in the vagina to completely close the tear, or else my sutures were not holding tight. I received the same character of report on the ninth day, when the second bowel movement was had. Of

course this made me very uneasy, but I kept quiet, and on the twelfth and fourteenth days and since there has been no such trouble. When the sutures were removed on the fourteenth day, she said bowel movements felt normal. No vesico-vaginal fistula developed.

The baby weighed $9\frac{1}{2}$ pounds and gave us some little trouble at first, but soon breathed properly. For several weeks he had an indurated tender mass along left ilium due to the forceps, and another just below the groin where I had hooked him with my finger, but they both cleared up nicely. He was not allowed to nurse the breasts because of mother's tubercular condition but has done well on cow's milk so far. I examined the mother recently (5 weeks later), and there is almost no gaping of the vulva. The scar tissue can be felt quite plainly, but she has some control of the levator and muscles and can distinctly raise the floor of the vagina when asked to do so. She has perfect control of gas and liquid feces, and could contract the sphincter ani muscles over my finger though *not* with its pristine force.

The management of this case leaves many points open for discussion. How would each one of you have treated the varying conditions as they arose?

530 Shirley Avenue.

PREMATURE MENOPAUSE.

By J. LEWIS RIGGLES, M. D., Washington, D. C.
Associate Obstetrician, Columbia Hospital; Instructor
in Gynecology, George Washington University.

With the exhaustion of the function of ovulation, the physiological menopause appears. It may be assumed an early cessation of the menstrual function is pathologic, and atrophy of ovarian tissue occurs from some cause, possibly defective nutrition, due to disorder of the trophic nerves.

The normal orgasm is usually absent in these cases, and the general nutrition greatly changed—the weight increasing 50 pounds or more.

Is obesity a constitutional cause of amenorrhoea, or is a perverted nerve system responsible?

There is a very close connection between the cerebro-spinal and sympathetic nerve systems and that of the sexual organs. One is dependent on the other, and nutritive disturbances in one will greatly influence the other, so that when there is atrophy or lowered nutrition of the

spinal centers, defective nutrition of the pelvic organs occurs, producing a "change of life."

Practically, we are unable to explain or find a tangible cause for these early cases, and the hapless woman goes through life knowing her abnormal state and non-fertility. They are most difficult patients to treat on account of the pronounced nervous phenomena, many of them becoming melancholic.

The not uncommon case here reported began this change at the age of 25, and in a little less than two years her early menopause was completed.

Mrs. R., age 25, first consulted me in June, 1905, thinking she was pregnant, and gave me the following history: Her parental history and that of early life was negative, and being an exceptionally healthy girl, menstruation appeared normally at the age of 12. The subsequent periods were regular, painless and normal as to quantity and quality of the flow until at the age of 22, when she suffered a severe attack of pain in the region of the right ovary, no fever, but confining her to bed for a few days. The appearance of the regular period at that time seemed to relieve the pain.

During her twenty-fourth year, her regular menstruation was absent on two separate occasions, but appeared normally at the second regular epoch.

She married in her twenty-fourth year, and at that time enjoyed perfect health. For the first four months following her marriage she saw no signs of menstruation, and concluded she was pregnant. I informed her that such was not the case.

A thorough physical examination showed her to be in splendid physical condition. Her environment had always been excellent, and there was no disease of her general system that I could discover. Careful examination of the pelvis under chloroform revealed nothing but a small anteflexed uterus, adnexa palpable and no adhesions. The result of my examination made her suspicious of barrenness, and she soon became a very nervous and depressed patient. This pitiable condition was not to be corrected.

I thoroughly dilated and curetted her uterus, leaving in a tight sterile gauze-packing for 30 hours. Iron, aloes, arsenic and cathartides were used in very large doses, but to no avail; ovarian extract was not used.

During her twenty-fifth and twenty-sixth

years, she menstruated only three or four times at intervals of three or four months, and since 1907 there has been no evidence of menstruation.

It is her belief that the attack of ovarian neuralgia, as she expresses it, was the beginning of the end. There was no fever or marked constitutional symptoms, and previously the appearance of the flow absolutely relieved her. She could assign no cause for this illness; subsequent periods, although free, were attended with some pain, which always preceded the flow.

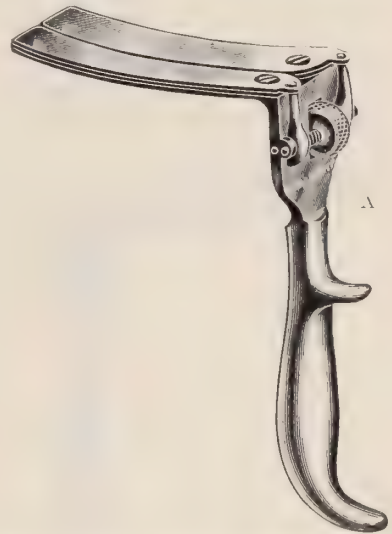
It might be suggested that this was an attempt at ovulation, which severely shocked the nerve cells in the spinal cord or brain, which entirely changed the normal female functions.

The Champlain, 1424 K Street.

A NEW ABDOMINAL RETRACTOR.

By ROBERT L. PAYNE, JR., M. D., Norfolk, Va.
Surgeon to St. Vincent's Hospital.

In a great many abdominal operations it becomes necessary to retract over a broad area of the viscera. This is especially true in bile-duct work where it is necessary to retract the



First Model—Single blade retractor when closed.
A—Hollow handle brazed on.

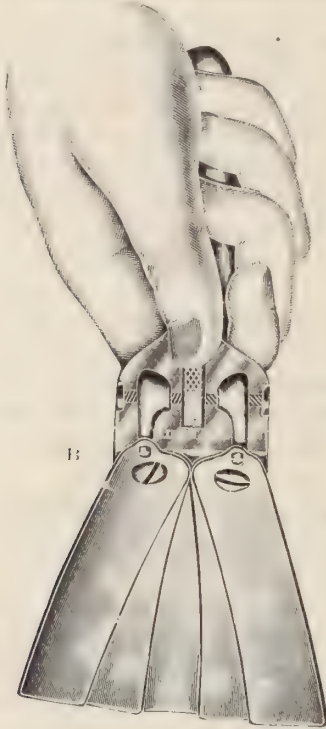
stomach, duodenum and caput coli inward. In these and other abdominal cases it is commonly the custom to place several pads and then one, two or three single blade retractors which require two or more hands to hold them in place.

This new instrument is designed to obviate the necessity of more than one hand being

utilized and the mechanism is so arranged that the retractor can be introduced as a single blade and then the four lateral blades spread

is supposed to fit over the aorta and rectum, while the two angles fit into each psoas fossa, thereby obviating the necessity for so many pads and retracting at these points where the bowels are most prone to bulge downward.

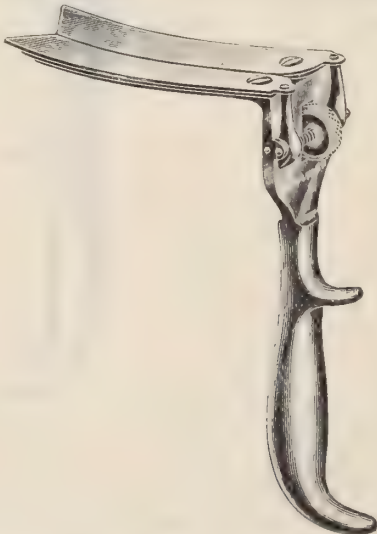
From personal experience, the first model



First Model—Opened, the width of three single blades.

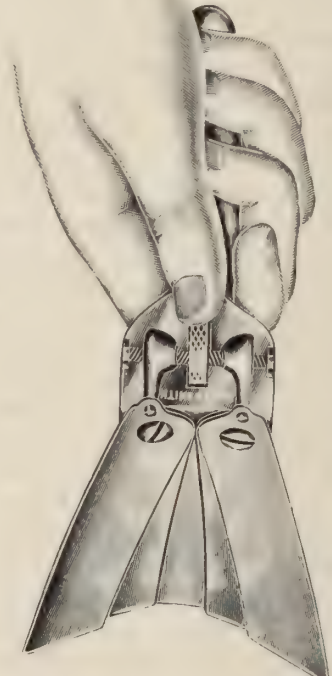
B—Screws removable for drying blades.

to the desired width. The retractor is made in two models. The first and most serviceable



Second Model—Pelvic retractor, closed.

has a slightly convex border when the blades are spread. The second style when opened has a well marked concave border and is especially a pelvic retractor. The center of the concavity



Second Model—Pelvic retractor, opened, showing concave free border.

with convex border has proven the most universally useful, while some of my friends who have kindly tested the instrument are disposed to favor the concave instrument in pelvic work.

It is hard to choose a handle that is acceptable to every taste. This one suits me, but to the operator of another preference it is easy to have any type brazed on at the point indicated in the illustration.

114 West Freemason Street.

A well-known Boston physician has the reputation of being exceedingly gruff, especially with those who he thinks are trying to beat him. The doctor was present at a social affair the other evening when a "deadbeat" whom the doctor knew of old, approached.

"Doctor," said this man, "what is the best thing for a cold?"

"Competent medical advice," replied the physician shortly, as he turned on his heel. —*Boston Traveler.*

Proceedings of Societies, Etc.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

(Continued from last issue.)

Primary Carcinoma of the Epiglottis, With Report of a Case.

By EMIL MAYER, M. D., New York, N. Y.

Primary cancer of the epiglottis is a rare disease, and up to the present time the treatment has consisted of surgical intervention or the use of radium and the X-ray. I have seen two cases of cancer of the epiglottis. The first case was diagnosed as probable malignant disease of the epiglottis, and the subsequent history was that of primary epithelioma of the larynx with subsequent metastasis, laryngectomy, and death. The second case was that of a man, 64 years of age, who consulted me for some slight difficulty in swallowing, especially the swallowing of cold liquids. His general condition was good. Examination showed some edema of the uvula, and numerous small white spots on the tongue and inner surface of the cheek. The condition was diagnosed as leukoplakia buccalis. He gave no history of lues. After treatment he improved somewhat, but this did not last, and some six or seven months later there was discomfort in swallowing, a nasopharyngeal catarrh, and the white patches still present. There were no other evidences of a diseased condition in the throat. About three weeks later a new condition presented itself on the laryngeal surface of the epiglottis. There was a deep ulceration surrounded by a thickened mass. The pathologist pronounced this cylindrical celled carcinoma. Here I had a case of carcinoma of the epiglottis in its earliest stages. The epiglottis was removed, after the patient had been anesthetized and the suspension laryngoscope placed in position. There was little bleeding at the time of the operation, but twenty-six hours after, the patient began to expectorate large quantities of blood. This bleeding was checked by the application of ice internally and by sprays of peroxide of hydrogen. He left the hospital in ten days. This was the first operation of its kind ever performed under the ingenious suspension laryngoscope of Killian.

Nitrous Oxid Gas, Essence of Orange, Ether and Sequestration in General Anaesthesia for Operation in the Upright Position.

By THOMAS R. FRENCH, M. D., Brooklyn, N. Y.

We are now able to state that as a result of the movements of the new operating table, and also as a result of the tests made in our clinic at the Long Island Hospital, that operative work in the upright position can be done with still less loss of blood, with the need of still less of the anesthetic, and with less disagreeable conditions during recovery from the anesthetic. Sudden changes in posture or sudden disturbances of the body while the patient is under a general anesthetic, predisposes to shock, the effects of which are manifested both during the operation and during the recovery from anesthesia. After a careful study of this phenomenon, I became impressed with the value of elevation of the body from the recumbent position to the upright position without jarring, and this led to the construction of the chair table. By the aid of a new attachment all the movements of the body are now made with as great freedom from jarring and disturbance of balance, with infants and very small children, as had hitherto been possible only with adults or larger children. The resulting improvement in conditions leaves no doubt of the accuracy of the observation. One of the most important and valuable recent additions to methods of anesthesia is the ability to omit or bridge the second stage, or stage of excitement, and we have been impressed with the desirability of attaining narcosis without struggle. This can be accomplished with nitrous oxid gas, but with greater ease and certainty with the essence of orange. The discoverer of the remarkable effects of the essence of orange as a preliminary to ether, Dr. Gwathmey, of New York, has demonstrated the possibilities and has proven to our satisfaction that it greatly assists in the reduction of shock by bridging the stage of excitement. Anesthesia conducted in this way up to the time of raising the body to the upright position is a contributory factor in reducing hemorrhage and also in reducing the quantity of anesthetic and in shortening and modifying the anesthetic after-effects. Irrespective of all other conditions, there is a well-defined relationship between the degree of skill in which a patient is anesthetized in the upright position and

the amount of hemorrhage is reduced if the anesthetic is smoothly given. A preliminary use of nitrous oxid gas or the essence of orange and the drop method of anesthol, followed by the drop method of ether with the open inhaler, and later with the Allis inhaler, will insure a prolongation of the anesthesia after the body has reached the upright position, a reduction of hemorrhage, and a reduction in disagreeable sequelæ. Sequestration of the limbs produces a congestive hyperemia, and is produced by means of inflated blood pressure cuffs about the thighs and arms; this reduces the amount of blood in the head. This, in association with the upright position which has been carried out in fifty-eight cases during the past season, reduces still further the amount of anesthetic required and still further the loss of blood. There need be no apprehension of subsequent bleeding.

Training of the Specialist.

By THOMAS J. HARRIS, M. D., New York, N. Y.

A concerted advance movement to properly standardize our specialty is essential. The time is now ripe. As an outline for a more definite working basis, some such plan of instruction for special work may consist in the following divisions: First, thorough preparation in the undergraduate medical school; second, a general preliminary training through several years of practice or hospital internship; third, at least six months of special instruction covering not only the clinical side, but the anatomic, pathologic, surgical, etc., as well; fourth, eighteen months of internship in a special hospital or in the ear, nose and throat department of a general hospital; fifth, at the conclusion an examination by a university which should confer upon the successful candidate a postgraduate degree. The committee appointed to investigate and report on this subject is strongly of the opinion that the postgraduate instruction should be given in some established university, and further, that to make this departure a success, legislation will be necessary. The committee is of the opinion that any success in this movement must be the result of concerted action on the part of the several societies representing America and Canada.

Announcement has been made that Tazewell County has less hookworm disease than any of the Virginia counties thus far inspected by officers of the Virginia Health Department.

Correspondence.

A Correction.

Norfolk, Va., Sept. 11, 1913.

To the Editor:—In your issue of July 25, 1913, under the head of "Proceedings of the Norfolk Co. Medical Society—Surgical Section," a statement was made to the effect that Dr. Hargrave had spent a greater part of the past winter in Schanta's clinic, in Vienna.

This was a mistake for which the reporter of those proceedings is responsible. Dr. Hargrave spent only four weeks in Schanta's clinic.

FRANK HANCOCK, M. D.

Book Announcements and Reviews

The Semi-Monthly will be glad to receive new publications for acknowledgment in these columns, though it recognizes no obligation to review them all. As space permits, we will aim to review those publications which would seem to require more than passing notice.

Modern Treatment of Nervous and Mental Diseases.

By eminent American and British authors. Edited by WILLIAM A. WHITE, M. D., Superintendent of the Government Hospital for the Insane, Washington, D. C.; Professor of Nervous and Mental Diseases in the Georgetown University and in the George Washington University; Lecturer on Mental Diseases in the U. S. Army and U. S. Navy Medical School, Washington, D. C., and SMITH ELY JELLIFFE, A. M., M. D., Ph. D., Adjunct Professor of Diseases of the Mind and Nervous System in the Post Graduate Medical School and Hospital; Visiting Neurologist to the City Hospital; Consulting Neurologist to the Manhattan State Hospital, New York, N. Y. Two octavo volumes, containing about 800 pages each, illustrated. Per volume, cloth, \$6.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1913.

The first volume of this work gives full discussion to such subjects as eugenics and heredity in nervous and mental diseases, education, sexual problems, educational treatment of the feeble-minded, delinquency and crime, immigration and the mixture of races, and alcoholism and the alcoholic psychoses. It then takes up the treatment of the various forms of nervous and mental diseases, and discusses them conjointly. The old adage of "An ounce of prevention is worth a pound of cure" is emphasized

in the advanced methods suggested for handling these cases.

Among the subjects discussed in the second volume are the neuralgias and neuritides, injuries of the peripheral nerves, muscular atrophies and dystrophies, headaches, spasmodic disorders, epilepsies, the meningitides, syphilitic diseases of the nervous system, the use of salvarsan and neosalvarsan, cerebral hemorrhage, embolism and thrombosis, disorders of expression, stuttering, diseases of the cranial nerves and lesions of the spinal cord, diseases of the optic thalamus, mid-brain and cerebellum, paralysis agitans and multiple sclerosis, the toxemias of dangerous trades and of drugs, and surgery of the brain and spinal cord.

The two volumes represent the combined efforts, in the form of monographs, of some of the most eminent and authoritative writers on the subjects indicated, and are both interesting and instructive. While this work was written primarily for the medical practitioner, it should also furnish material for the educator, the student of criminology, of immigration, the hospital superintendent, the social worker, and intelligent laymen.

Practical Medicine Series. Under the General Editorial Charge of GUSTAVUS P. HEAD, M.D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School, and CHARLES L. MIX, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School. **Vol. I, General Medicine**, Edited by FRANK BILLINGS, M.S., M.D., and J. H. SALISBURY, A.M., M.D., Price \$1.50. **Vol. II, General Surgery**, Edited by JOHN B. MURPHY, A.M., M.D., LL.D. Price \$2.00. **Vol. III, The Eye, Ear, Nose and Throat**, Edited by CASEY A. WOOD, C.M., M.D., D.C.L., ALBERT H. ANDREWS, M.D., and GUSTAVUS P. HEAD, M.D. Price \$1.50. Series 1913. Chicago: The Year Book Publishers. 12mo. The Series of 10 volumes, \$10.00.

The volumes referred to above are three of a series of ten, published at almost monthly intervals. Each book is complete on the subject of which it treats for the year prior to its publication and the set covers the entire field of medicine and surgery. The series is intended primarily for the general practitioner, though the arrangement into several volumes enables those interested in special subjects to buy only the parts they desire.

International Clinics. Edited by HENRY W. CATTELL, A. M., M. D., Philadelphia. Volumes III and IV, 1912 and Volumes I and II, 1913. Philadelphia and London: J. B. Lippincott Co. Cloth. 8vo. Price \$2.00 each. About 300 pages to each volume.

To one who has any acquaintance with these volumes there is no need of commendation from us, for their great value to the possessor must be evident at a glance. To the uninitiated, however, we may say that these quarterly clinics contain illustrated clinical lectures and especially prepared original articles, covering every department of medical science, by leading members of the medical profession throughout the world, and discuss, besides the topics of live interest, the latest advances. While each separate volume contains much that is good, we believe that a regular subscription to each series as they are published will prove of the greatest service in keeping the physician's library up-to-date, and we are confident the investment will not be regretted.

Editorial.

Unethical Hospitals.

Hospitals have been in existence for hundreds of years; they were the outgrowth of humanity and charity. Every city of eight or ten thousand inhabitants supports at least one hospital, while the larger cities maintain a much larger number. And there is reason for the establishment of still more, especially for the care of special diseases.

Aside from purely municipal hospitals—hospitals established for the treatment of poverty-stricken sick and wounded of a city—hospitals have been founded and financed by worthy philanthropists; others have been founded with a view to perpetuate a name; others, again, by reason of a few individuals who desire to appear among the charitable members of a community. Medical schools found and support their hospitals in order to provide clinical material for their classes. The competition and the race for patients in the unendowed, and in some private hospitals, results only too often in all manner of abuse and trickery. Ethical treatment of all physicians not connected with these institutions becomes a farce—a crying shame.

In the conduct of a hospital, the aim of the

governing board should be to work in harmony with the entire medical profession, rather than be antagonistic. All matters relating to the financial, religious, and executive business should be divorced from the medical and surgical side of affairs. As the lay board is responsible to the lay governors, so the medical board should be responsible to the medical governors.

Everything pertaining to divisions of service, appointment of members of and assistants to the Staff, appointments of internes and externes, hours of operations, as well as the dismissal after full investigation of charges filed and proven against offending members of either Staff,—these matters must be the province of the medical board, and must be confirmed, without question, by the entire board of governors.

Some appointments, made upon the basis of political or personal influence, have frequently resulted in the selection of incompetent men; the medical members of the board of governors have thereby been made the plaything of outside influences and the hospital has suffered, and also been brought into disrepute. Appointments to hospital boards should not, therefore, have the faintest suspicion of politics or personal favor. Good men do not seek these places,—the places seek the good men.

We have knowledge of very recent exhibitions of the unethical conduct of a large hospital in its relations to the medical profession of one of our large cities. The full and unprejudiced investigation of these unethical actions caused the hospital to be classed "unethical." Those members of the medical board who were the offenders still continue as members of the Staff; they still hold their membership in their State Society without discipline or censure, whereas, expulsion should be their portion. Such a paradoxical state of affairs is hard to understand, unless it arise from moral cowardice. It is an easy matter to select other hospitals for patients, and it should be equally as easy to avoid unethical men in the sick-room. In following this plan, friendships will be broken; consultations may decrease; the hospital will maintain its existence; the code of ethics will be sustained, but medical socialism and commercialism will receive a blow that will soon bring order out of chaos. L. E.

Medical Society of Virginia.

As time approaches for the coming meeting of the Society in Lynchburg, October 21-24, those who expect to attend are more and more interested in what will be seen, heard and done at that time. To those who are regular attendants, it is unnecessary to offer inducements; if a member and non-attendant, why not come this year, and see what good work is being done by the Society? It is a help to mingle with others and get their ideas, and to forget the humdrum existence many have at home. In other words, it is a rest mentally and physically, added to the pleasure of seeing old faces, and making new friends. It is an opportunity no member should miss. If possible, bring a new member with you. There will be social pleasures not for the doctor alone, but also for the lady members of his family accompanying him. There is no place in the State more generally accessible to all sections than Lynchburg, and the officers and local profession are anxious to have this the banner meeting. Hotel accommodations are ample, though it is always wise to make reservations ahead.

The president of the Society, Dr. Southgate Leigh, Norfolk, states that there are at least 500 physicians in this State eligible to membership who have not yet affiliated themselves with the Society. Are you one of these, and if so, why? The Society needs you as much as you need it, for in unity there is strength which is necessary to influence legislation in all matters of paramount interest to the profession. Membership in your State Society has weight in securing positions with insurance companies and other corporations requiring the services of physicians. Think it over, and be with us in Lynchburg. Application blanks for membership may be obtained from the president, chairman of membership committee, Dr. Wm. D. Turner, Ocean View, or the secretary, Dr. P. A. Irving, Farmville.

The scientific and social program for the Lynchburg meeting promises enough to be interesting to all, and we hope all who can will attend. It should be a stimulus for better work on your return home.

Medical Colleges and Students.

A recent issue of the *Journal of the A. M. A.* contains a section on Medical Colleges in the

United States, from which we note that fourteen colleges have been suspended or merged with other colleges and two new colleges organized since June, 1912, making a total at this time of 106. This is the smallest number of medical colleges in the United States since 1880. It is claimed that there are still eleven cities where mergers are possible in order to bring about further improvements in medical instruction. There is but one large medical school each in Berlin, Paris and Vienna—three of the most famous medical centers in Europe.

As entrance requirements are advanced, the number of matriculants and graduates of the medical schools is decreasing, the total number of graduates for year ending June 30, 1913, being 3,981, a decrease of 502 below 1912. Illinois has the largest number of students enrolled in its colleges, followed in order by New York, Pennsylvania, Tennessee and Maryland, while the largest number of students hail from New York, Pennsylvania, Illinois, Ohio, Massachusetts, Texas, Missouri and Tennessee in the order named.

The Clinical Congress of Surgeons of North America

Will have their fourth annual meeting in Chicago, November 10-15, with general headquarters at Hotel La Salle, and headquarters for the section on Surgery of the Eye, Ear, Nose and Throat at Hotel Sherman. There will be an attractive program including papers by prominent American and European surgeons and clinics each day covering every branch of surgery. Clinics will be held from 8 A. M. to 5 P. M., and scientific sessions will be held each evening of the week except Saturday. Dr. Geo. E. Brewer, New York, is president, and Dr. Franklin H. Martin, Chicago, general secretary.

The first Congress was held in Chicago in 1910, with an attendance of 1,200, and with the interest manifested at the Philadelphia and New York meetings in 1911 and 1912, it is hoped that from 2,500 to 3,000 surgeons may gather in Chicago for the Congress this year.

Southside Virginia Medical Association.

The forty-second quarterly meeting at Suffolk, September 9th, was opened by Dr. T. C. Harris, of Kenbridge, who presided until the

arrival of the president, Dr. Bernard Barrow, of Barrows Store. Dr. E. F. Reese, the secretary, was in his place as usual. Interesting clinics were held at the two hospitals, which demonstrated the progressive work done by the surgeons in that section. The subject for general discussion—typhoid fever—was discussed by Drs. D. L. Rawls and R. L. Raiford. Others presenting papers were Drs. T. F. Jarratt, J. Shelton Horsley, and Lucien Lofton. Between the afternoon and evening sessions, a most enjoyable banquet was tendered those present at the Nansmond Hotel.

The Virginia Health Department

Reports that for eight months beginning January 1913, 30,580 persons were examined in this State for hookworm disease, and 6,153 were given treatment. While more persons were examined this year than any previous year, the rate of infections was not quite so large, which leads the health officers to believe that the worst infected counties have already been reached.

Attention is also again called to the fact that diphtheria antitoxin, at the special rate of 40 cents the thousand units, plus nine cents for cost of syringe, may be obtained from the State Health Department by rich and poor alike, whenever and wherever needed. Druggists may also purchase it with the privilege of selling it to consumers at a reasonable advance in price.

A Pellagra Conference

Was held at Spartanburg, S. C., early in September, under the auspices of the Thompson-McFadden Pellagra Commission and the State Medical Society. Dr. Louis Sambon, head of the School of Tropical Medicine, in London, the principal speaker, stated that fifty-three cases of pellagra had been reported in the British Isles, though it was probable that many more existed which had not been diagnosed owing to the ignorance of physicians in regard to the disease. Although he had reached no definite conclusion as to the identity of the transmitting agent, he suggested the Buffalo gnat as a suspect. There were nearly 200 physicians interested in pellagra, representing practically every Southern State, in attendance.

Dr. Stuart McGuire,

Of this city, who attended the International Congress of Medicine in London, as a delegate from the United States, has returned home after a delightful trip.

Antenatal Care of Expectant Mothers.

This is a subject which is beginning to attract much attention in this country as well as abroad, where it originated, and was also one of the many topics discussed at the Conference on Infant Mortality, held in London, in August. Some of the larger cities in this country are endorsing the plan, by beginning the establishment of such homes. The plan is to have the expectant mother come to the home for a month or several weeks, and see that she gets proper food and rest as well as instruction as how to care for herself and child. The work done along this line abroad has seemed to result in a lowered mortality rate.

Discarded Battleships to be Used as Sanatoria and Open air Schools.

This is the title of a paper presented by Dr. Knopf before the International Congress on School Hygiene, meeting recently in Buffalo, and published in the *New York Medical Journal*. It is stated that the Secretary of the Italian Navy had decided to convert three old Italian warships into sanatoria for tuberculous children, and this plan is offered as a solution of the question as to how to obtain adequate accommodations for those affected with or with a tendency to tuberculosis in the United States. It is estimated that there are 1,000,00 children in this country with tuberculosis or a predisposition to it, while there are only about 1,500 who can be cared for in the open air schools.

As opposed to the considerable cost of remodeling and fitting the old battleships for these sanatoria or open air schools is brought out the opposition and prejudice of neighboring districts to the establishment of institutions for the care of the tuberculous, in addition to securing the land. Boats anchored in rivers or harbors remote from habitation, and the fact that it has been demonstrated that practically all climatic conditions, provided the air is dust-free, lend themselves to the prevention and cure of tuberculosis, were arguments in favor

of the government allowing the discarded boats to be utilized in this manner.

Dr. and Mrs. Mark W. Peyser

Have returned to their home in this city after a pleasant visit at Rawley Springs.

The American Electro-Therapeutic Association,

At its annual meeting in New York City, early in September, elected the following officers for the coming year: President, Dr. Geo. E. Pfahler, Philadelphia; vice-presidents, Drs. A. C. Geyser, New York, Frank B. Grainger, Boston, Jno. W. Torbett, Marlin, Tex., Wm. L. Clark, Philadelphia, and Frederick C. Tice, Roanoke, Va. The secretary, Dr. J. Willard Travell, New York, treasurer, Dr. Emil Heuel, New York, and registrar, Dr. Frederick M. Law, New York, were all re-elected.

Dr. A. C. Palmer,

Urbanna, Va., who spent much of the past summer in Europe, has returned to his home.

Dr. Jacob Michaux,

Richmond, who has suffered from a protracted illness, is now much improved.

Field Hospital Suggested for State Fair.

When the question arose of securing an ambulance from the city, to be stationed on the grounds of the Virginia State Fair, to be held in this city October 6-11, it was suggested to the Fair officials that if they would furnish a large tent with wooden floor, the city would provide a corps of surgeons, nurses and equipment necessary for a field hospital, in addition to the ambulance. It is believed that one of the local military companies would make a loan of the fixings needed. The matter is still pending but it seems likely that the officials will avail themselves of the offer, in view of the great distance of the Fair grounds from the city or private hospitals.

Some Recent Changes of U. S. Army Medical Officers.

E. W. Patterson, M. R. C., left Ft. Hunt, Va., September 10, on 14 days leave.

First Lieutenants John B. Anderson, Ft. Monroe, and William W. Vaughan, Ft. Meyer, relieved from duty at these stations to repair to the Army Medical School, Washington, for the required course of instruction, reporting on or about September 20.

Col. Walter D. McCaw, Medical Corps, is relieved from duty at the Army Medical School.

Golden Wedding Anniversary.

Dr. and Mrs. C. W. P. Brock, of this city, will informally celebrate the golden anniversary of their wedding, in their home on the afternoon of October the first. The doctor and his wife are so prominently known and generally beloved that we bespeak for them the hearty congratulations of their friends.

P. A. Surgeon G. B. Tribble,

Of the U. S. Navy, who has several times contributed to our pages, has been detached from the Naval Hospital, Washington, D. C., and ordered to the Solace.

Poliomyelitis in Virginia.

Reports from this State for August 1913, show 39 cases of poliomyelitis, eight of these being from Giles County, and four each from Henry and Roanoke Counties. The remainder of the cases reported are scattered throughout the State.

Dr. Hiram Byrd,

Formerly of Jacksonville, Fla., has severed his connection with the State Board of Health of Florida, to become associated with the management of Grand View Sanitarium for Tuberculosis, Port Orange, Fla.

Typhoid Fever in St. Louis.

From August 1 to September 5, inclusive, it is reported that 244 cases of typhoid fever were notified in St. Louis.

Dr. and Mrs. Sydney J. Baker,

Of South Richmond, have returned home from a trip to Europe.

Improved Typhoid Rate in Danville, Va.

The typhoid fever record in Danville for 1913 is the best recorded by the health authorities, and it is believed that much of the good is attributable to the work done by the health officer, Dr. Hudson. There have been seven deaths reported from typhoid fever from the first of this year to the middle of September, and conditions are much better now than at any time since hot weather.

The Richmond Academy of Medicine and Surgery

Resumed its regular meetings, after the usual summer rest, September the 9th, the meeting

being held in the auditorium of the Medical College of Virginia. Drs. B. M. Rosebro and J. N. Upshur presented papers.

Dr. Edward McGuire,

Of this city, has moved his residence and offices to 6 East Franklin Street.

Dr. Seale Harris,

Mobile, Ala., secretary-treasurer of the Southern Medical Association, has resigned his position as professor of practice of medicine in the University of Alabama, owing to the pressure of his other work.

American Hospital Association.

At the annual meeting of the Association in Boston, the last of August, Dr. Thomas Howell, of New York City was elected president; Dr. H. A. Boyce, Kingston, Ont., secretary, and Mr. Asa Bacon, of the Presbyterian Hospital, Chicago, was re-elected treasurer.

P. A. Surgeon H. de Valin,

Who was detailed by the U. S. Public Health Service to assist in the investigation of typhoid fever in the rural districts of Virginia, with headquarters at Roanoke, was directed to proceed to Washington, D. C., and report to the Director of the Hygienic Laboratory for duty, upon completion of his work in this State.

The American Roentgen-Ray Society

Will hold its fourteenth annual meeting in Boston, October 1-4, under the presidency of Dr. Henry K. Pancoast, of Philadelphia. The secretary is Dr. Sidney Lange, of Cincinnati. This meeting promises to be very attractive and interesting.

Dr. E. J. Nixon,

Of Petersburg, Va., is out again after an illness of several weeks.

Virginia State Board of Medical Examiners.

Of 101 applicants who took the full examination at the June meeting, 77 passed, 21 failed, and 3 were incomplete or withdrew. Nineteen non-graduates took the partial examination, of whom 15 passed, 2 failed, and 2 withdrew. A full account, with list of those who passed, will be given in next issue.

Dr. A. B. Greiner,

Of Rural Retreat, Va., was among the speakers on the 17th, at the opening exercises

of Roanoke College, of which he was a graduate in 1893.

A Difference in Viewpoint.

"Minneapolis is the cleanest city it has been our privilege to visit. Whether the clean up was for the occasion we know not, but the city was really clean, backyards and alleys as well as front streets and lawns."—*New Mexico Medical Journal*.

This brings up the question—what was McBride doing prowling around in the alleys and backyards.—*Mississippi Medical Monthly*.

College of Physicians and Surgeons, Boston.

At the opening exercises of the thirty-fourth annual session, Dr. I. L. Nascher, New York, delivered the opening address, his subject being "The Medical Care of the Aged."

Oklahoma Adopts Eugenic Marriage Law.

We note that the Oklahoma Legislature has passed a law making that another state to require a certificate of health and freedom from contagious and transmissible diseases before the marriage license may be issued.

The International Congress of Medicine

Will hold its next meeting, the eighteenth, in Munich, in 1917. Dr. Freidrich von Müller, of Munich, was elected president. ,,

Preventive Medicine in Emboria School.

As indicative of the progress made by some of our schools, a course in preventive medicine was last year introduced in the Greensville County, Va., High School, and weekly lectures were given by Drs. Lucien Lofton and R. T. McNair.

Improved Typhoid Fever Rate in New York City.

Reports from the Department of Health of New York City show that there was less typhoid fever in that city from January through June, 1913, than for the first six months of any year since the incorporation of the Greater City. There were 467 cases with 91 deaths reported in this period for 1913, or a rate of only 8.8 cases per 100,000, as opposed to 18 cases per 100,000 in 1908, and 17.6 cases for 1912. It is believed that this decrease is attributable to the anti-typhoid immunizations in addition to a number of other favorable influences.

The Medical Economist,

The official organ of the Associated Physi-

cians' Economic League of Greater New York, made its initial appearance in August, and will be published monthly, at \$1 per annum, at 71 West 23 Street, that city.

It claims to be in no sense a medical journal but will discuss the economic problems which confront medical practitioners, and will call attention to bills inimical to the medical profession that may be introduced in the legislatures of the country. It invites literary contributions as well as subscriptions.

The U. S. Department of Agriculture,

Through its chemists, has issued warnings to the public against some so-called radioactive waters which do not possess the properties claimed for them. Investigations are now being carried on with the object of securing evidence that can be made a basis of prosecution for misbranding. As far as the Government can ascertain, the foreign waters admitted to this country are correctly labeled as to their real or curative properties.

The Department also issued a statement against many systems of diet recommended for commercial profit. It suggests that people should be wary of receiving advice or treatment from people who have not seen them, as a diet that would suit one person might not suit another individual living in a different climate and doing a different kind of work.

Obituary Record.

Dr. Garland Payne Moore,

Formerly a prominent physician of Cape Charles, Va., but who left there a little more than three years ago for Koke, Japan, died suddenly on shipboard, at Arden, Arabia, September 9. He was born in Eastville, Va., in 1864, and after an academic education at Randolph-Macon College, studied medicine at the College of Physicians and Surgeons, Baltimore, from which he graduated in 1886. When he lived in Virginia, he was identified with a number of interests in his section, and had retained his membership in the Medical Society of Virginia, after leaving this State. His widow survives him. It is thought that his body will be brought to this country for interment.

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TESTS OF RENAL FUNCTION WITH SPECIAL REFERENCE TO THE PHENOL SULPHONE PHTHALEIN TEST.*

By R. ARTHUR HOOE, M. D., Washington, D. C.

Knowledge that impairment of function in diseased kidneys not demonstrable by the ordinary methods of chemical and microscopical urinary analysis has led during the past few years to a more careful study of the subject, many methods having been brought forward, some of which have fallen into more or less disfavor, giving way to others which have proven to be better adapted, if not ideal.

When we enumerate the requirements—without which a functional test cannot be considered ideal as such—that it should indicate for example not only the work that the kidneys are doing at the time of observation, but also the reserve force of which they are capable when under strain, it can hardly be said that the most satisfactory method thus far employed has reached the stage of perfection, but it is equally as certain that they have been a very great aid in prognosis as well as in diagnosis.

Functional tests are, however, merely supplemental, not sufficient alone upon which to base diagnosis, or to outline treatment, and should be considered only in conjunction with other clinical findings. Investigators have as yet thrown little light upon the subject of renal function by means of quantitative estimation of the normal urinary constituents—urea, chlorides, phosphates, total nitrogen, etc., for the reason that the amount of these substances eliminated is dependent not only upon renal activity but upon the amount conveyed to the

kidneys, which is in turn governed by the quality and quantity of food ingested.

As long ago as 1877, the mind of Bouchard conceived the idea of a dye test, he being the first to experiment with fuchsin, but little was accomplished until twenty years later when methylene blue was introduced by Achard and Castaigne, and since which time has been employed very extensively.

Methylene blue cannot, however, at this time be classed as excellent as a test of renal activity for the reasons that it is an irritant even when injected intra-muscularly in some cases; its time of appearance is delayed—thirty minutes in normal cases; in certain obstructive conditions of the lower urinary tract it is even delayed two to three hours, and it has in some instances not appeared at all. It may also be added that only 50% is excreted by the kidneys normally; that complete elimination requires a period of several days in health, and, finally, that it does not lend itself well to colorimetric methods of quantitative estimation. Indigo-carmin, introduced by Voelcker and Joseph, similarly employed in the past ten years, has given more general satisfaction by reason of its more rapid appearance and quicker elimination, although only 25% is excreted by the kidneys normally. This, like methylene blue, is an irritant when injected locally, and like the latter does not lend itself well to colorimetric methods of estimation. As a test of the glandular function, phloridzin has been used quite extensively because of its peculiar property by which it is capable of producing an artificial glycosuria. But this test is not free from criticism, as Walker has repeatedly shown that a number of normal individuals injected have failed to excrete sugar; moreover, the test being very sensitive to slight renal changes is likely to exaggerate the lesion.

*Read before the George Washington Medical Society, January 18, 1913.

Of the tests physical in character may be mentioned cryoscopy and electrical conductivity. Cryoscopy (a determination of the freezing point), which is influenced by the molecular concentration or amount of total solids present, does not seem to offer information of greater value than does the old and reliable method of determining specific gravity. Electrical conductivity is based upon the amount of normal constituents in the urine, and is measured in ohms of resistance, a low resistance of urine indicating health. But accuracy in this test is entirely dependent upon a knowledge of salt and water intake. The test has not been extensively employed because of the expensiveness of the apparatus and lack of skill in its use.

As the time limit will not permit us to discuss more at length the subject of functional tests in general, we will now pass on to a more detailed consideration of one to which it is particularly desired to direct attention—the phenol-sulphone-phthalein.

The present investigation of the renal function by means of phenol-sulphone-phthalein, with the great deal it seems, at least, to offer, originated from the research of Geraghty and Rowntree, of Baltimore, upon the phthalein family; and also from the tests made by the latter of the effect of this phthalein upon rats infected with various strains of trypanosomes.

Their observations at once suggested a possible application of this preparation to investigations relating to the physiology of the kidney, particularly as other agents similarly employed had met with more or less disfavor.

Phenol-sulphone-phthalein is a bright red, crystalline powder, somewhat soluble in water; more so in alcohol; insoluble in ether; readily soluble in solutions of sodium-carbonate. Its strongly alkaline solution is purple. Abel and Rowntree have demonstrated that the solutions of the sodium salt can be injected under the skin without producing irritation; that administration by mouth is not followed by untoward effects, and that the subcutaneous administration is followed by the appearance of the drug in the urine within ten minutes.

The method of its absorption from the bile in the intestine was also investigated. Following the injection of one gram doses, the drug appeared in the bile in high concentration in one to two hours. It was then re-absorbed by

all parts of the intestine and only a trace found in the stool.

In order that data of real value may be obtained, it is necessary to know, first, the time of appearance of the drug in the urine; and, second, the exact percentage of the dye, a known amount of which has been administered, that is recovered in a definite period of time.

The application of the test embraces the following:—Preparation of the catheter and graduated glass syringe, with long needle, by sterilization; preparation of the patient as for instrumentation, also the hands of the operator. The drug in solution is prepared as follows:—.6 grams of phenol-sulphone-phthalein and 84 cc. of double normal sodium-hydroxide solution are added to .75% sodium chloride solution. This gives the mono-sodium or acid salt, which is red in color, and which is an irritant locally, when injected; a few drops more of double normal sodium hydroxide, a quantity sufficient to change the color to a deeper red, are added, the resulting preparation being a non-irritant.

The solution thus prepared is put up in ampoules, each containing little more than 1 cc. Each cubic centimeter contains 6 milligrams of the drug, the size dose chosen for the reason that larger doses gave a color so intense that great dilution became necessary for quantitative colorimetric estimation.

Half hour before administration, the patient is given a pint of water in order that free urinary secretion may be insured, and to guard against delay in time of appearance, which might be due to lack of secretion.

In making the test, one proceeds as follows: The anterior urethra is irrigated with a 1-80,000 solution of bichloride (as for any other instrumentation). The catheter is then introduced into the bladder and the bladder completely emptied, the urine being set aside for routine chemical and microscopical examination. One cubic centimeter of the solution is drawn into the syringe, care being taken to avoid the presence of air bubbles. After the application of tincture of iodine, the push needle is disconnected and inserted intramuscularly in the upper outer quadrant of the gluteal region. The syringe is then re-connected and slowly emptied, the time being carefully noted.

The catheter having been retained, the urine is allowed to drain into a test tube containing a few drops of 25% sodium hydroxide solu-

tion, and the time of appearance of the first faint pinkish tinge noted.

In patients without urinary obstruction, the catheter is withdrawn at the time of appearance and the patient instructed to void in a receptacle at the end of one hour, and into a second receptacle at the end of the second hour.

In cases in which catheterization is difficult, or not advisable, the time of appearance can be roughly estimated by having the patient void urine at frequent intervals. In prostatic cases, however, it is sometimes wise to have the catheter in place until the end of the observation; in which cases, the catheter may be corked at the time of appearance of the drug in the urine, and the cork removed at the end of the first hour and again an hour later, the bladder each time being thoroughly drained. The two specimens of urine are carefully labeled and measured. These two glasses contain the amount of the drug excreted by the kidneys during the first and second hours, and the method of determining this amount is the colorimetric. (By this we mean a comparison of the color of the solution of the drug in the urine with that of a solution containing a known quantity of the drug,—in other words, a standard solution.)

In order to make this comparison, the Du Bosq colorimeter was originally used exclusively and has proven of the greatest value, but Rown-tree and Geraghty's modification of Hellig's apparatus, because of its being less complicated and therefore more inexpensive, is, for practical purposes, quite satisfactory.

This instrument is very simple, consisting of a wedge shaped cell which can be elevated or lowered by means of an adjustable screw, a rectangular cup in which to place the solution to be estimated, a scale upon which to determine the percentage and a prism through which to make comparison.

To make comparison, we now add to each of the first and second hour collections of urine, 10 cc. of 5% sodium hydroxide, a quantity sufficient to render the solution alkaline, which imparts to it a brilliant purple red color. The solutions are now placed in litre measuring flasks, and water added to each sufficient in quantity to make 1 litre. They are then thoroughly shaken and a small filtered portion is taken for comparison with the standard solution, which is prepared as follows:—1 cc. of phenol-sulphone-phthalein solution, containing

6 milligrams from an ampoule, is diluted with about 200 cc. of water and 10 cc. of 5% sodium hydroxide added, and water to make 1 litre.

The wedge-shaped cell in the colorimeter is filled with the standard solution, and the rectangular cup is filled to the mark found upon it, with the filtered solution to be tested. The cup is then placed in the apparatus and the wedge-shaped cell lowered or elevated by means of the adjustable screw until the colors, as seen through the prisms, are identical when the percentage to be estimated will be directly indicated on the scale.

Rarely large amounts of urine, or small amounts containing much pigment, may influence the colorimetric estimation by rendering a correct reading quite difficult, and so lead to error.

Two methods of corrections are suggested:—The first consists in making up a standard solution, using the same amount of urine as is obtained from the patient,—the patient's own urine or any other specimen of like color. The second method consists in precipitating the coloring matter of the urine with basic lead acetate.

We will next consider briefly the practical application of this drug as a test. What has been learned from the observations above described? In normal cases results have proven that the dye appears in the urine in from 5 to 11 minutes, and that 40 to 60% is excreted in the first hour, and 20 to 25% in the second hour, making a total of 60 to 85% within the first and second hours following administration.

Let us next consider the variation in abnormal cases. It is a well established fact that stricture, prostatic hypertrophy, and other conditions obstructing the lower urinary passage, when of prolonged duration, are followed by secondary changes due to mechanical influence in the bladder, ureters and kidneys respectively. A back pressure becomes established with concomitant residual urine. The amount of urine excreted in some of these cases may be normal, as may also the urinary finding, and yet the patient be upon the brink of renal inadequacy; hence the importance of careful and painstaking investigation before surgical interference.

Phenol-sulphone-phthalein, in these cases, has shown not only retardation in time of appearance, but a marked decrease in the percentage of output, especially during the first hour.

In surgical renal disease there has been found to be a prolonged time of appearance and a decrease in the amount of excretion, and in unilateral conditions, such, for example, as tuberculosis and renal calculus, the use of the urethral catheter has been of marked value in revealing the amount of renal destruction.

The time of appearance has, on the diseased side, been decidedly prolonged, 15 to 20 minutes, and the percentage of output reduced to from a fraction to 10% in some cases, while the time of appearance on the healthy side was normal, and the amount excreted, taken together with that from the diseased side, normal for both kidneys, a compensatory hypertrophy having been established.

Reverting for a moment to the subject of administration, it is probably of interest to note that Schmidt, Kretschmer, Keyes, Stephens, and others, have during the past two years quite extensively employed the intra-venous method, especially in connection with ureter catheterization, having found that both time of appearance of the dye and its complete elimination were very much lessened, average time of appearance being less than five minutes, total elimination being less than an hour. As time economy seems to be the only practical inducement offered by this method of administration, its employment would seem superfluous except in connection with ureter catheterization, in the class of cases in which quick observation is desired.

From the foregoing it would seem that phenol-sulphone-phthalein thus far has proven itself to be of greatest value, it having been so thoroughly tried and not found wanting by Drs. Rowntree and Geraghty, in the well-known clinic of Dr. Hugh Young.

Under the guidance and co-operation of Dr. Fowler, careful observations have been made on cases in the genito-urinary clinic of Freedmen's Hospital and on private patients, numbering more than fifty,—sixteen of the cases in the clinic being apparently normal, and the remaining abnormal.

In the apparently normal cases, the average time of appearance was $11\frac{1}{4}$ minutes; average percentage of the drug excreted during the first hour, 58.3; in the second hour, 18.75; total for the two hours, 77.05%.

Of the abnormal cases tested, we desire here

to submit a brief description of three which are of particular interest.

Case 1.—L. D. S.; married; age 70. *Family History.*—Negative. Saw patient January 24, 1912.

Previous History.—Patient states that about eighteen years ago he suffered an attack which was characterized by frequency with painful micturition and accompanied by the passage of several small vesical calculi.

Present Illness.—For the past two weeks patient has experienced great pain and difficulty in emptying bladder, intense pain especially at the end of the act.

Examination.—External genitalia normal; urine alkaline, very foul, containing much pus, blood and mucus.

Rectal.—Prostate apparently normal. Base of bladder very tender, especially on left side. Catheter passes readily into bladder where a calculus can easily be felt. Sixty-eight cc. residual urine. Bladder capacity 100 cc. with pain.

Cystoscopy.—On February 17th, after the instillation of 4% cocaine, which was necessary because of the extreme sensitiveness, instrument was easily introduced, when two freely movable white granular stones the size of hickory nuts were seen. Large shallow diverticulum was seen on anterior wall, and three small diverticula seen at left margin of this. Manipulation of cystoscope at vesical orifice difficult and painful because of calculi. Marked cystitis at base and over trigone. Interesting to note that stones were not in their usual position but could only be seen with instrument looking toward anterior bladder wall.

Patient has been drinking large quantities of gin and using rectal suppositories for the relief of pain. In view of the above findings, patient was urged to go to hospital for preliminary treatment, to be followed by operation as soon as deemed wise. To this he demurred, stating that some years ago he had lost a daughter in a hospital and that her death had followed an operation; that he had little confidence in hospitals and greatly feared operations. With the exception of telephone consultations which were not a few, little followed until July 1, 1912, when accompanied by his wife he presented himself and requested that he be sent to a hospital, that his condition had become intolerable. It was now plainly visible that the patient since last seen had lost greatly both in

weight and in strength. After advice in full as to the gravity of his condition, he was taken to Garfield Hospital for preliminary treatment.

Phthalein test resulted as follows: Time of appearance, 46 minutes. This was followed in two hours by merely a trace of the dye, a percentage too small to estimate. With little hope, perineal cystotomy was done under gas-oxygen four days later by Dr. Fowler and five large stones were removed, two of which were encysted, one on either side of mid-line just within bladder. These two were removed with some difficulty. The operation consumed one hour. Considerable shock followed; patient's condition was precarious for the following twenty-four hours, at the end of which time, however, he responded, the kidneys secreting more than 60 ounces during the next twenty-four hours. On the fourth day patient began to show unmistakable signs of uremia, increasing pulse rate and respirations, restlessness, stupor, gradually deepening into coma etc., until the tenth day, when he died with symptoms of renal insufficiency.

Autopsy:—Both kidneys large, anaemic. Right ureter dilated to size of finger, pelvis dilated and filled with purulent urine. Left ureter of normal size. On section, kidneys were anaemic and fibrous with small abscess foci apparently present. Bladder, with pouch-like projection at fundus, was necrotic just within sphincter at right of encysted calculi.

There was a phthalein test done in this case when it first came under observation, which showed a delay in time of appearance—not as long as forty-six minutes, however; and a percentage in two hours, which, while small, was sufficient to estimate. The record of this was unfortunately lost in the office.

A comparison of these two tests seems to demonstrate quite clearly the gradual kidney involvement that occurs in all such cases.

Case 2.—R. D.; male; colored; age 40 years; married. *Family History.*—Father living and in good health; mother died of pneumonia at the age of 24 years; has one brother living and healthy. Wife has always enjoyed good health. *Previous History.*—Had all diseases of childhood, except diphtheria and scarlet fever. Contracted gonorrhœa at the age of twenty; indulged very freely in alcoholics and neglected treatment, so condition became chronic. At

the age of thirty-seven was treated for malaria and cystitis, and upon advice of physicians went to Detroit for the benefit of his health. Was given at this time urotropin and sorghum compound and bladder irrigations of permanganate of potash daily. Lost weight, which he regained after reaching Detroit. After residence there of two months, however, he engaged in work in the repair shops of an automobile company, and immediately he began to lose weight, reducing from 140 to 120 in two months. Condition was accompanied by chills and sweats, weakness and pains in back, at times pain in bladder region, frequent and urgent urination, the urine containing much pus. Condition grew progressively worse until June 15th, 1910, when he returned to Washington and consulted Dr. Fowler, who, after a careful cystoscopy, finding pus escaping from the right ureteral orifice, gave a diagnosis of pyonephrosis.

Condition grew progressively worse until July 10, when he was admitted to Freedmen's Hospital. Temperature upon admission 101.2-5°, pulse 84. A nephrotomy was done by Dr. Fowler and a great quantity of thick pus was drained from the right kidney. Drainage was left in for ten days or two weeks, during which time large quantities of pus were expelled. Patient remained in hospital, running a septic temperature for twenty-four days, then went home, where he was up and down for a month, then went to bed, because of general weakness, where he remained for six months, during which time he gained in weight as well as in strength. Had no desire to be out of bed but was advised to do so. Gradually his former weight was regained and an additional fifteen pounds, since which time, with the exception of the fact that he feels a stiffness in his lower extremities and a moderate degree of weakness, his condition is apparently as good as it ever was.

Present condition.—Urinates more frequently and more copiously than ever before; drinks a gallon of water in 24 hours. Urine is uniformly cloudy, containing a great deal of pus. On December 12, 1911, he was injected with 1 cc. of phenol-sulphone-phthalein solution. The dye appeared in the urine within 38 minutes; at the end of the first hour 100 cc. of urine was collected which contained 71½% of the drug. At the end of the second hour 80 cc.

which contained 1% only, a total elimination in the two hours of 81½%.

Case 3.—M. E.; age 67 years; married. *Family History.*—Negative. *Previous History.*—Had measles and mumps during childhood, and has since had no illness other than a mild attack of gripe. No history of venereal disease. Has always been of temperate habits. About January 20th, patient began to notice for the first time that his urine contained blood in considerable quantity; he also noticed that urination was more frequent and accompanied by slight burning pain at the end of the act, lasting a minute or two. The conditions grew steadily worse until February 5th, when he was admitted to Freedmen's Hospital and referred to Dr. Fowler. Rectal examination revealed the presence of a very large prostate bulging into rectum; difficult to reach upper limits with examining finger. Cystoscopy was difficult, owing to projecting lobe of prostate in bladder. Urine contained epithelium, red cells, pus in abundance, and numerous hyaline and granular castes.

Diagnosis. — Prostatic hypertrophy, with large intravesical growth projecting into rectum. On February 6th, a functional test was made with the following results: Time of appearance, 15 minutes; first hour, 35 cc. of urine containing 23.5%; second hour, 35 cc. of urine containing 16%, a total of 39.5% for the two hours. Preliminary treatment to restore the kidney function preparatory to suprapubic prostatectomy was begun with water in large quantities to flush out the kidneys, and urotropin. On February 13th, one week later, a second rectal function test was made with phthalein, with results as follows:—Time of appearance, 10 minutes; first hour, 125 cc. urine containing 47%; second hour, 160 cc. urine containing 12%; total for two hours 59%.

This case demonstrates very prettily, not only the practical value of the phthalein test, but also the very great deal that can be accomplished in certain of these cases by preliminary treatment prior to operation.

That phenol-sulphone-phthalein has many advantages over all other drugs hitherto employed as tests of renal activity, seems quite conclusive for reasons which may be summarized as follows:

- 1st. The smallness of dose required.
- 2nd. The fact that it is a non-irritant locally.

3rd. The non-toxicity of the drug (as much so as sodium chloride).

4th. Its early appearance in the urine.

5th. Its rapid excretion.

6th. Its complete elimination by the kidneys, its chemical nature being unchanged.

7th. The nicety with which it lends itself to colorimetric methods of estimation.

From a careful consideration of the facts as above set forth regarding phenol-sulphone-phthalein, and the knowledge that has been gained as a result of its use, it would not seem a speculation to predict that the time is not far distant when it will have found favor with the general surgeon, the internist and the obstetrician, as well as with the genito-urinary surgeon.

The Burlington.

A FORM OF TREATMENT IN A CASE OF LUPUS VULGARIS AND PULMONARY TUBERCULOSIS.

By WILLIAM J. MANNING, M. D., Washington, D. C.

If one will reason upon the peculiar fact presented after necrosis of the variety of tissue cells concerned in an infected tubercular area during and after the formation of the nodule with its resulting nonvasculature, it would not appear possible or rather very difficult to conceive, owing to the absence of blood channels ramifying to the part, how any neutralizing agent or serum, systematically or intravenously, reaches the infected area except to a very limited extent on account of the absence of ramifying blood and lymph channels and consequent means of communication to the part affected extending through the caseous walls and mass of tissue debris.

I quote from Muir and Ritchie on the action of tuberculosis as concerns the tissues:

"There can be no doubt that the cell necrosis and subsequent caseation depend upon the products of the bacilli, and are not due to the fact that the tubercle nodule is nonvascular. This nonvasculature itself is to be explained by the circumstance that young capillaries can not grow into a part where tubercle bacilli are active, and that the already existing capillaries become thrombosed, owing to the action of the bacillary products on the walls, and ultimately disappear. * * *

Turning over in my mind, then, means to overcome this only too true condition, I decided to use Lugol's solution in combination with old tuberculin in an endeavor to throw by the galvanic current a sufficient quantity of the

tuberculin combination entirely into and permeate the infected area or penetrate to a degree sufficient to destroy *en masse* or otherwise attenuate the bacillus of tuberculosis or any mixed infection in the tissues existing in connection therewith.

This appeared to be the only feasible way in which to overcome the condition, because, upon reflection, if any neutralizing agent is administered by the syringe, it can only be expected to penetrate a limited or circumscribed

according to Dr. Randolph Carmichael, of Washington, had appeared in his skin clinic at the Emergency Hospital, where the doctor had made the same positive bacillus diagnosis five years ago, but the patient, according to the doctor, was not at that time so extensively involved as shown in the photograph marked "Fig. I" which was taken on June 12 of the present year just previous to the time I began treatment—on June 15, 1913.

According to the mother, the early history shows that the boy has had this "sore face" since he was two years of age, and that it first began to appear after a fall received upon the head, the scar of which still remains visible in photo upon the right side of forehead and from which the lupus is to be seen as shown in photo, radiating from the lower angle.

An examination of the boy showed a robust body with no indication whatever of pulmonary involvement, although on admittance to the hospital a temperature existed that has since disappeared under the treatment. The respiration and pulse were found to be normal. The fever probably existed as the result of the local infection.

Upon examining the face I found the infection to extend from behind the right ear, with entire involvement of the latter, and thence downward along the angle of the jaw, and upward to the outer canthus of the right eye and eyebrow, extending from this point to the left side of nose; below was found a large tubercular caseous gland, the size of a hen's egg, fixed and rigid, at the commencement of treatment, which shows plainly in the photograph marked "Fig. I." This gland has since totally disappeared, as is shown in the succeeding photos.

The state of the tissue affected was boggy, putrid, and constantly discharging pus through many sinuses and fissures so thickly situated as to appear to the eye at first to be emerging from an open discharging raw surface and was loathsome to look upon. About four ounces of pus were thus being discharged during each twenty-four hours.

I applied 3 c. c. of Lugol's solution in combination with 0.5 c. c. of old tuberculin of 1-100 dilution in 50 c. c. of a saturated saline solution, soaking a piece of lintine previously cut to fit the entire infected surface of face, inclusive of gland, and over this molded a black tin electrode, 18-gauge, cut so as to leave a



Fig. I. Showing condition of the face of patient on June 12, 1913, before treatment began on June 15, 1913. Note the presence of the tubercular gland at the base of right jaw.

zone, in the absence of blood channels, and in a few hours, owing to the rapid proliferation of the organism, the zone becomes reinfected and apparently renders any effort in this direction futile.

Through the courtesy and kindness of Dr. H. H. Hazen, of this city, I secured at Freedmen's Hospital skin clinic, on June 15 of the present year, a case of lupus vulgaris, in which the identification of the organism present had been shown as positive. The case is somewhat classical, as I afterward determined, for the boy,

margin of about one-half inch of lintine showing from beneath the tin electrode. This I found by experience was necessary in order to avoid burns and discomfort to the patient when the edges of metal came in contact with the tissue direct.

A galvanic current of 15 milliamperes' strength was allowed to flow through the anterior or negative electrode, the positive forming the posterior electrode, previous laboratory

from pole to pole a distance of approximately two-and-a-half inches.

Three treatments only were given, two days apart, and the last one week from the second treatment, but the current strength was raised to 30 milliamperes in the last half of each hour's treatment from an initial strength of 15 milliamperes in each first half hour one hour's time constituting each specific treatment, the same proportions of Lugol's solution and tuberculin being used in the same manner as previously described in each instance.

While many will doubtless claim that in using Koch's old tuberculin in lieu of the newer preparations far better results might have been obtained, yet I have endeavored to keep in mind constantly that any ex-osmosis of the endotoxin or elaborations produced in virile cultures from the living active bacilli before being killed with heat in comparison with physical and chemical changes presumably taking place during the preparation of the other tuberculin preparations, might possess some innate chemotactic virtue or action in a selective fashion in searching out and combining with its own, and thus possibly serve in a measure as a vehicle in combination with the iodine that would tend to alter the function of or attenuate the organism concerned.

Just what took place as concerns the bacillus or its products in the tissue in the case of lupus here presented one is unable to state definitely, and must rely in a great measure, if not wholly, upon the clinical manifestations that must be apparent to anyone at a glance if he will look upon the series of photos herewith, or examine the patient personally.

At the Naval Medical School in this city, Doctor Clarke, of the Naval Service, and I demonstrated the feasibility of passing iodine in salt solution by osmosis through one-half of a hard-boiled egg, the yolk being removed and the resulting cavity being filled with starch water, the egg floating in a glass dish containing the salt solution and iodine, using simply, to aid the osmosis, a single dry cell with the negative wire placed in the salt solution contained in the glass dish, the positive wire being emersed in the starch water in the concavity of the egg. The blue odine reaction should show to any who may care to try the experiment in from ten to fifteen minutes or at the latest half an hour, and is pronounced and distinct.



Fig. II. Showing condition of the face of patient on June 25, 1913, ten days after first treatment. Cicatrization largely in evidence over entire infected area. Tuberculous gland greatly reduced in size. No pus.

tests having shown the chemicals used to be electro-negative in action. This procedure was continued for one-half hour, and the current was then raised to 20 milliamperes for the remaining half-hour of the total one-hour treatment.

The positive electrode smaller in proportion to the negative, was placed on the right side of neck and similarly prepared, save that the lintine was immersed only with a saturated salt solution, the intent being in all instances to drive the electrolyzed iodine and tuberculin ions in combination through the tissue at an angle

I am glad to be able to show this case of lupus photographically and the improvement and healing that have taken place, because it demonstrates at once ocularly what may have transpired in the lungs in a case of pulmonary



Fig. III. Showing condition of the face of patient on July 15, 1913, thirty days after first treatment. Cicatrization about complete. Face resembles a healed burn of the second degree. Note the entire disappearance of tubercular gland.

tuberculosis that I have recently treated in the Washington Asylum Hospital of Washington, D. C., that was turned over to me by the courtesy of Dr. Percy Hickling, Chief of Staff, on May 1, 1913.

The patient, a bartender, white, 38 years old, had a history of infection of both lungs, that extended over a period of two years. In the previous six months he has had most severe night sweats, loss of weight, and coughed all night, accompanied by profuse expectoration to the amount of approximately a litre in twenty-four hours.

The cough was so severe that he informed me he would often fall over upon the bed in the morning after a sleepless night, thoroughly exhausted, and after "bracing" himself for the day's work with fifteen or twenty drinks of

whisky, he would then have comparative ease during the day.

Upon his arrival at the hospital he told me he fell three times to the ground from sheer exhaustion while traversing the distance from the car terminus to the hospital grounds, a distance of about six hundred yards.

The sputum examination showed the presence of the bacilli. He was given the routine treatment of emulsion and creosote and a tentative diet. He was running a temperature at the time of admittance. Two days after his entrance I gave him the first treatment, which consisted of 4 c.c. of Lugol's solution and 1 c.c. of 1-100 dilution of old tuberculin, in 75 c.c. of saturated salt solution, applied by means of the electrodes shown in photo, and in the

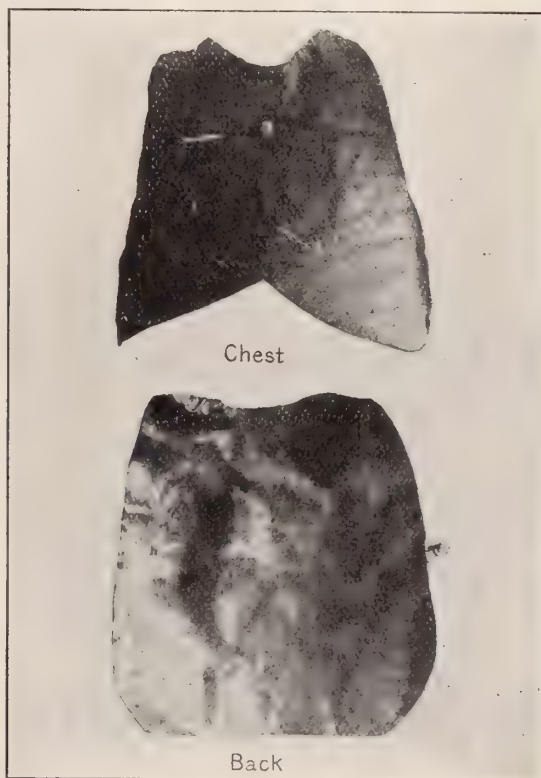


Fig. IV. Copper negative and positive electrodes described in text and utilized upon case of pulmonary tuberculosis.

same manner as described in the case of lupus, saturating the lintine in the solution and allowing the cotton lining saturated with the solution to extend with a margin of half an inch from beneath the electrodes.

Each treatment covered a period of an hour and a half, and 35 milliamperes of a galvanic

current were used for the first half hour. The amperage was then reduced to 20 milliamperes for the remaining hour, as he complained of the heat from the electrodes at the former strength, but bore the last strength without any discomfort whatsoever.

The next day after first treatment he informed me that the sense of weight and pain about the chest left him during the night and that he breathed with less exertion and with greater ease. The record shows that he slept soundly for a period of eight hours, and he stated that it had been his first complete night's rest for a period of over a year. The temperature showed the tuberculin curve, but on the third day it dropped to its former level. This rise in temperature after each treatment in which tuberculin was used was noted in each instance. Four days later he was given another treatment, the same amount of odine and tuberculin being used with the same current strength. The iodine compress was applied upon negative electrode at back.

The morning after the second treatment the nurse informed me that the amount of his expectoration was rapidly diminishing, and then, by measurement in separate glass jars each day, upon the sixth day it was found to have dropped one-half in amount, and in character had changed from the typical stringy greenish lump to a thin light, frothy material.

After a lapse of one week he was given the third treatment, consisting of the same amount of the iodine and tuberculin combination, the same current strength being used as in the first instance.

On the fifteenth day the cough had about disappeared, save for a short time in the morning, and the night sweats had ceased completely. The expectoration was very scanty and a sputum examination showed a negative condition so far as the bacilli were concerned.

The patient was placed upon a tonic and began to gain rapidly in weight and strength, gaining as much as seven and one-half pounds in one month.

After being in the institution for a period of about six weeks he made application and was discharged without my knowledge. He sought employment at his former occupation, so he informed me later, but could not find employment, and after being absent from the hospital for about ten days he returned suffering

from alcoholism. This time so he stated, he drank almost constantly during his sojourn and slept and ate irregularly.

There was, however, no return of the former symptoms, save that he complained of being weak physically. As the man was eligible to the Soldiers' Home, I succeeded in having him admitted to this place, where regularity of



Fig. V. Copper electrodes in position on the body and secured in place with turns of two-inch rubber rollers. Binding posts shown with positive and negative wires attached.

meals and proper rest have continued to increase his weight, and his strength is consequently coming back to him. He also writes me under date of July 21, 1913, that he has had no return of his "lung trouble."

The electrodes used upon this case and shown in photograph I made by molding large sheets of softened electrotypers' wax over the thorax and back of a thin living subject, then chilling the wax by means of ice water compresses to the shape thus obtained. Later the wax concave surfaces were covered with graphite to give a metallic surface and the molded wax forms were then placed in an electrotypers' vat and two copper shells were thus deposited or con-

structed. This gives the electrodes shown a universal feature in that they are easily adapted to the average emaciated thorax and back, and can be secured in place by two-inch rubber rollers as shown in photograph. The outer surfaces are covered with electrician's adhesive tape for purposes of insulation when the electrodes come in contact with the bed clothes during treatment. Thin, ductile or pliable metal sheets molded over the parts should accomplish the same results. They were made of large size in order that the bodily resistance would be less, and additionally to cover the entire lung area, rather than of small dimensions to cover here and there any spots revealed by percussion of the underlying lungs that at best are dubious as to the extent of the infection.

Dr. Morton, of New York, about ten years ago successfully anesthetized sensitive dentine by the galvanic current, and termed the process cataphoresis so that there is nothing new in driving medicaments into the tissue.

Should it transpire that the method outlined possesses virtue as concerns pulmonary infections, as it clinically appears beyond a reasonable doubt to have resulted in the case of lupus, I firmly believe it is only a matter of the prolongation of the current or electrical osmosis applied to the solution described at the time of, and in the frequency of treatments in connection therewith. In order to reach the goal desired we should try to keep before us during further work of this kind the fact that the human body is after all only a number of porous septa made up of a series of animal membranes through which the phenomenon of osmosis must and does take place, presumably at least, as demonstrated in laboratory practice.

The character of the apparatus described by which this work may be thoroughly tried out and utilized is designedly simple, so that the remote practitioner wherever situated has at his ready command all the necessary material required, at the drug store as well as the hardware store, for metal electrodes and dry cells for the galvanic current.

Regarding the views and exhibits presented in this paper as concerns tuberculosis one realizes that he has cut loose altogether from the existing moorings. No suggestion or theory has been broached, however, but which a little further increase of our scientific knowledge may not show to be eminently probable; none,

it would appear, are irretrievably beyond the jurisdiction of additional scientific tests, which, should circumstances permit, I may undertake at some future time, or others are invited to take up this work.

If I might be permitted to add a word or two of caution in connection with the treatment outlined, it would be well, in every case, to ascertain any idiosyncrasy to iodism possessed by the patient, and additionally to be satisfied with a low degree of current—say not over fifteen or twenty milliamperes extended over a period of one hour or more during each specific treatment—with the consequent avoidance of burns or discomfort to the patient, the number of milliamperes being raised or lowered according to each specific physiological resistance encountered. Heating the salt solution with contained remedial agents previous to application will be found to obviate any chill to the patient while the electrodes are being adjusted to the skin.

My thanks are due to Medical Inspector E. R. Stitt, U. S. N., G. F. Clarke, Passed Assistant Surgeon, U. S. N., A. H. Glennan, Assistant Surgeon General, Public Health and Marine Hospital Service, Dr. H. H. Hazen, Dr. Randolph Carmichael, Dr. Percy Hickling, and Dr. D. P. Bush, for courtesies extended, and to Dr. Walter Van Sweringen, pathologist, Freedmen's Hospital, for kindly taking photographs for use in this article.

1113 N Street, N. W.

SOME INDICATIONS FOR SUB-MUCOUS RESECTION OF THE NASAL SEPTUM OTHER THAN APPARENT OBSTRUCTION OF NASAL RESPIRATION.*

By CLIFTON M. MILLER, M. D., Richmond, Va.

Professor of Rhinology and Laryngology, Medical College of Virginia; Rhinologist and Laryngologist, Memorial Hospital; Ophthalmologist, Otologist, Rhinologist and Laryngologist, City Hospital, etc.

The subject of sub-mucous resection of the nasal septum has occupied such a large space in rhinological literature during the past few years that it would seem as though there were nothing left to be said, but it has appeared to the essayist that, though much time and attention has been given to the consideration of the operative technique of those cases which pre-

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sent angular deviation, other portions of the subject which are of importance have been somewhat neglected.

In selecting the title of this paper, the term "apparent obstruction" was used not because the cases and conditions which are to be considered are cases of obstruction, but that obstruction was high up and the stoppage of either nostril for a period of five minutes would allow sufficient air to pass through the other to keep the patient comfortable.

In spite of this, there is obstruction of nasal respiration, for the air current, while it passes over the inferior turbinate, does not go into the olfactory region of the nose nor pass over the openings of the nasal accessory sinuses; hence aeration and drainage of these cavities is not accomplished and the resultant pathological changes give many symptoms that are not always fully pointed out in standard works on rhinology.

Both Ballenger and Phillips, in their most excellent text-books, say "High deviations of the nasal septum are prone to cause frontal headache which is most severe upon waking in the morning. If this headache is of ocular origin, it subsides at night and recurs upon use of the eyes during the day." While this statement is true in the main, there are so many exceptions to it, that it should not be allowed to pass unchallenged.

Packard, in his text-book, in the chapter on reflex disturbances gives many valuable references. This chapter is well worth our careful perusal, and here he calls attention to H. Gradle's report of cases of asthenopia which were caused by intra-nasal disease; these asthenopias were usually the result of trouble in the anterior ethmoid and frontal region.

A. L. Whitehead in 1905, in *British Medical Journal*, says "Nasal disease is undoubtedly the cause of headaches in a certain percentage of cases, but that it is doubtful whether it is possible for headache to be produced by any nasal condition which does not give rise to discharge or to obstruction to normal nasal respiration." This statement seems to be undoubtedly true, but do we always take sufficient care to recognize the slight catarrhal discharge from the nasal accessory sinuses and to satisfy ourselves that the current of air is going through all the nose that should receive benefit from its passage?

Many cases of this type come under observation and are allowed to pass from our hands often into those of the charlatan and quack because a sufficient volume of air is going through the nose and there is no appearance of purulent discharge from any of the sinuses.

A. Hartman called attention to headaches and neurasthenias due to affections of the nasal passage and says that in a large portion of cases the headaches are due to insufficient oxygenation of the blood and accumulation of toxins in consequence of the mechanical obstruction of the nasal breathing. This statement contains much of truth but does not cover all classes of cases that make the most difficulties in our dealings with the subject and presupposes the condition to be an insufficiency of air passing through the nose; hence there is an actual and marked obstruction of nasal respiration.

Kate W. Baldwin, in *Laryngoscope*, 1905, speaks of the class of patients whose symptoms cause them to seek the oculist and are treated by many physicians before finally having the conditions corrected by proper rhinological work.

It is not the purpose of this paper to go into the many different forms of reflex trouble which may be caused by diseases in the nasal fossa or its accessory sinuses, but merely to deal with the class which present few if any symptoms referable to the nose, and try to elicit some discussion that may throw further light upon this class of cases which seems to have received an insufficient share of our attention.

It is not an unusual experience for the oculist to have a patient present himself with the statement that he has been to many oculists, and received glasses from each, but the benefit to his condition of intense headache following near use of the eye has been slight if any. As an earnest of his statements, he will show a dozen pairs of glasses differing but slightly in their strength and state the names of men whose reputations are such as to convince that the work of refraction has been carefully and conscientiously done, yet the suffering of the patient has not been eliminated.

This class is not a small one, and should not be allowed to continue its suffering without other aid than such as is offered by the innumerable so-called headache remedies and analgesics which fill the shelves of our drug-stores.

Careful surgical correction of the deformed

nasal septum will give great relief and restore once more to the sufferer, not only the ability to perform eye work in peace and comfort, but also his confidence in the ability of the medical profession to cure his pain by getting at its cause, which confidence has been subjected to a severe test by the many failures which have occurred in his case.

The following cases, taken from a considerable number, will serve to illustrate the points here made and indicate the results which may be gotten:

Case 1.—Dr. —, a dentist from Bluefield, W. Va., consulted me November 1, 1911, with the history of having consulted many oculists on account of his inability to attend to his work with comfort, or to do any reading. He had been given various glasses and told that the gold with which he filled his patients' teeth caused eye symptoms in many dentists. Just before coming to me, his physician told him that his trouble was in his nose and if he had that corrected he would be much better. Upon examination of his nasal chambers I found full space in his inferior meatus; there was a deviation of the septum to the left high up, impinging against the left middle turbinate which was hyperplastic, and a part of the anterior portion had been removed before coming to me. A sub-mucous removal of a part of his septum restored him to health and enabled him to pursue his work, free from headache and also the dizziness which leaning over his patient had formerly caused him.

Case 2.—Mr. M., college professor, consulted me a number of times about his eyes. He had been having headaches following the use of his eyes, and the trouble was therefore distinctly traceable by him to eye work, as he never suffered from such pains during his period of rest, provided he did no reading at such times. Careful refraction of his eyes on two different occasions failed to give him the amount of relief which he sought though his refractive error was a marked one, and he suffered with less nervous irritability as a result of the use of his glasses. Rhinological examination showed a deviation of the nasal septum high up in the ethmoid region interfering with the passage of the air current to the roof of the nose and causing pressure upon the middle turbinate. A sub-mucous resection of the nasal septum gave relief from his

suffering and he is now doing post-graduate work in one of the Northern colleges and using his eyes with comfort.

Case 3.—Miss J., employed in a tobacco factory, consulted me about her eyes in January, 1912. Refraction showed a very marked error for which glasses were prescribed, but failed to give the relief sought from the headache, though she said she was very much less tired at the completion of her day's work and that she felt that the glasses were of benefit, though the use of her eyes still caused her headache from which she was free when not using her eyes. Rhinological examination showed antero-posterior deviation of the nasal septum extending up into the middle meatus making pressure on the middle turbinate. Correction of this by sub-mucous resection in the nasal septum, while it was followed by some perforation, resulted in absolute relief of all of her symptoms, and ability to continue her work with entire comfort to herself, and at night to use her eyes for reading or such other near work as she might desire to perform.

Case 4.—Miss H., school teacher from Burkeville, Va., consulted me in August, 1912, on account of headaches and conjunctivitis following the use of her eyes. Examination of her refractive condition showed an error, which was corrected by glasses with some relief of the eye strain and conjunctivitis, but the headaches persisted whenever she used her eyes. In November, a sub-mucous resection of her nasal septum was done, and she now reports herself as working and using her eyes with perfect comfort, a thing which she has not done for many years before.

The above cases are taken merely as examples from a considerable number; in all of them except Case 3, the deviation was confined to the upper part of the nasal septum, and in all, including Case 3, there was ample space for respiration in the inferior meatus. In none of them was there any purulent condition of the sinuses though all had chronic catarrhal sinusitis.

All of these patients referred their suffering to their eyes as a cause, and, upon examination, a refractive error quite sufficient to cause the asthenopia was found, but wearing the proper glass did not give relief until the nasal condition was corrected.

Are we going to let this class of cases con-

tinue to suffer, or shall we study more carefully and fully the supposed cases of refractive error that glasses fail to relieve?

3 West Grace Street.

Proceedings of Societies, Etc.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

(Continued from last issue.)

History of a Broncholith, Bronchial Calculus, or Lung Stone.

By WALTER F. CHAPPELL, M. D., New York, N. Y.

This case is cited to show that all causes of asthma are not centered in the nose, nor all throat coughs in the larynx. The patient was a woman, 52 years of age, who was attacked by severe wheezing, the spasmodic cough lasting an hour at a time, and by intense tickling in the throat. The tickling was below the larynx, and the wheezing in the upper part of the chest, in front and behind. The patient soon raised a small calcareous mass, but the asthma continued. Another coughing spell resulted in the expulsion of a large calcareous mass. Immediately all wheezing stopped and the breathing became absolutely free. Later another calcareous mass was coughed up. Chemically these masses consisted of phosphate of lime. The patient gave no history that would give a clue to the cause for the existence of this condition.

The Removal From the Esophagus of a Plate of False Teeth Embedded for Eighteen Years, by Means of the Esophagoscope.

By D. BRADEN KYLE, M. D., Philadelphia, Pa.

This foreign body which I present was very difficult to locate, in spite of its size and shape, on account of the granulation tissue which had organized into fibrous tissue, together with the curvature of the spine, as the X-ray picture shows. The patient swallowed the upper suction plate with four front teeth attached while sleeping. The plate lodged in his throat, and a physician who was called in wished to push it down into the stomach, to which the patient objected. He then went to a hospital where, after the passage of several instruments, he was assured that he had never swallowed the plate or that it was no longer in the esophagus. For a few weeks after the patient felt slight pain in the lower part of the neck at the point he always felt

that the object had lodged. After that time there was no sensation, but swallowing has always been difficult. The Kahler esophagoscope was used, and many attempts were made before this foreign body was successfully removed. By loosening the plate from the fibrous bed by setting up slight inflammatory action and then waiting a few days, the plate was removed without much ulceration of the structure.

Preliminary Report Concerning the Passage of Bacteria Through the Tonsillar Tissue as Determined by Experimental Research.

By GEORGE B. WOOD, M. D., Philadelphia, Pa.

From a study of our experiments it seems that the following conclusions may be drawn: 1. The tonsils in the hog are more readily infected by the anthrax bacillus than any other portion of the buccal or pharyngeal mucosa. The clinical history of this disease in the hog shows that in the great majority of idiopathic cases the pharynx has been the site of invasion, and in all of these cases of pharyngeal diseases the tonsils are the port of entry. In none of my experiments was there any involvement of the pharyngeal or buccal mucosa other than the tonsils. While the culture of anthrax was generally brought into more intimate contact with one of the tonsils, it was impossible to limit the bacilli to the tonsillar surface, and they came into contact with a large part of the pharynx. In the infection an effort was made to rub the emulsion into one tonsil only and in one case the lesions were limited to one tonsil only, but this was not the tonsil on which the culture had been rubbed. 2. Anthrax bacilli penetrate through the cryptical and not the surface of the epithelium. 3. The anthrax bacillus probably gains access to the parenchyma of the tonsil by passing through the living, unaltered epithelium, and having gained access through the superficial layers of the epithelium, they tended to multiply in the deeper layers and then pass into the interfollicular tissue. 4. The anthrax bacilli penetrating through the living normal epithelium cause a devitalization of the tissue, which paves the way for secondary infection from the staphylococci or other pathogenic organisms. 5. The rapidity of the invasion is influenced both by virulence of the organism and the susceptibility of the individual animal. Following the invasion the subsequent course of the disease is similar to that

found in other tissues. The toxin elaborated by the bacilli causes at first an accumulation of polymorphonuclear cells, later necrosis of the tissue cells with disintegration of the nuclei. The germinating follicles show more resistance to the disease than the inter-follicular tissue. Associated with the necrotic process is an increase in the number and engorgement of the capillaries, and sometimes there is marked extravasation of the red blood cells. The anthrax bacilli accumulate in the lymph spaces and also around the blood vessel walls. In some of the sections examined the bacilli were found penetrating the blood vessel walls, and a few were found actually in the blood current.

THE MEDICAL EXAMINING BOARD OF VIRGINIA

Met in Richmond, June 24th, 1913, at 8:30 P. M.

On roll call the following members were present: Drs. Rennie, Preston, Barney, Old, Warinner, Wright, Dew, Boyd, Holladay, Chaffin, Williams, Corey and Martin.

Board called to order by the President, Dr. R. S. Martin, who requested Dr. Warriner to open the meeting with prayer. Minutes of the last regular meeting were read and approved. The minutes of the called meeting of the Executive Committee on March 18, 1913, were adopted, a copy of which follows:

Whereas, the Virginia State Board of Medical Examiners at its December meeting, in its efforts to follow the statute (the wording of which renders its correct interpretation difficult), adopted a law which, if adhered to, will debar Virginia from reciprocity with every State in the Union, and whereas, the Executive Committee believes such a policy extremely unwise and to be against the best interests of the Board and State and contrary to the law and purpose of the Board, therefore, be it

RESOLVED, that the Secretary be instructed to disregard said order of Board and to register for reciprocity applicants from States with which we have reciprocal relations, provided the applicants meet the requirements of our Board.

RESOLVED, that the Secretary be instructed to call the Reciprocity Committee to meet with him the day before the examination begins.

Dr. Barney offered the following resolutions which were adopted: That article five, section six, of the by-laws be repealed; and that the resolution concerning the meeting of the Reciprocity Committee with the Secretary on the day before the examination begins, be incorporated in the by-law concerning the duties of the Reciprocity Committee.

Mr. R. C. Stearnes addressed the Board concerning admitting Dr. Alexander, who did not meet the preliminary educational requirements, to the examination. The Board refused to admit him.

Dr. Preston reported that, of the fund of fifty dollars placed in his hands to help prosecute chiropractics in Roanoke, he did not have to use any of the fund but co-operated in every way possible.

Dr. Barney offered the following resolution, which was adopted: As it is the policy of the State Board of Medical Examiners to aid in every way possible the prosecution of irregular practitioners in the State, that the fifty dollars in the hands of Dr. Preston be used in such manner as he deems best for the purposes stated above.

A letter was read from Dr. Dalton to the president concerning the prosecution of Dr. J. Harry Martin. Dr. Barney offered the following resolution, which was adopted: The secretary be instructed to inform Dr. Dalton that there seems to be no grounds for prosecution in this case.

The Question Committee reported that they had examined all of the questions of the respective examiners, and approved them.

Dr. Williams, Chairman of the Reciprocity Committee, made the following report, which was adopted: That reciprocity be granted to the following applicants: Dr. S. M. Yancey, Dr. A. Y. P. Garnett, Dr. T. T. Gibson, Dr. S. E. Webb, and Dr. E. E. Smyth. Reciprocity was refused to numbers one, seventy-three, and seventy-seven.

Dr. Neilson was not granted his request

Dr. Bullock was not allowed an oral examination.

The Board decided that those who registered prior to June, 1912, would have to pay fifteen dollars in order to bring the total up to twenty-five dollars, the fee at present required for taking the examination.

The Board decided, on motion of Dr. Holla-

day, that the monitors be given seven dollars and a half each per diem.

Dr. Rennie's request to be exempted from further attendance at this meeting was granted.

Drs. Boyd and Dew were appointed to audit the books of the treasurer.

Drs. Corey, Wright and Preston were appointed on a committee to outline the conduction of practical examinations.

Drs. Old, Warinner and Corey were appointed on the Legislative Committee.

Dr. Dew offered the following resolution, which was adopted. That the secretary be empowered to join the Federation of State Examining Boards.

On motion of Dr. Dew, the Board decided that they could not grant the request of Dr. Litsinger to be allowed to register.

After deciding upon the order of examinations, the Board adjourned to meet at 10:30 A. M., Wednesday, June 25th.

JUNE 25TH.—Board met at Mechanics' Institute at 10:30 A. M. Called to order by president. The following members were present: Drs. Martin, Wright, Dew, Boyd, Holladay, Chaffin, Williams, Corey and Old. Minutes of the previous meeting were read and approved. Drs. Wright, Corey and Old were appointed a committee to look into the advisability of obtaining a fire-proof receptacle for preserving the records of the Board.

The secretary was instructed to pay the necessary fee of the assistant secretary to be appointed a notary public.

The secretary was given fifty dollars by the Board for defraying his railroad expenses to Chicago last February.

Concerning another request of Dr. Litsinger, Dr. Boyd offered the following resolution, which was adopted: The secretary be instructed to inform Dr. Litsinger that the statute positively forbids anyone from practicing on conditions outlined in his request.

The Board adjourned to meet at 8 P. M.

JUNE 25TH.—Board was called to order by the president at 8:15 P. M. at Murphy's Hotel.

June 25th, 1913.

The Auditing Committee made the following report, which was adopted: The Auditing Committee has examined the Secretary-Treasurer's

books and find all funds correctly accounted for, with a balance on hand of \$2,435.49.

P. W. BOYD.

H. W. DEW.

Board adjourned to meet at hall at 10:30 A. M. on Thursday.

JUNE 26TH.—Meeting called to order by president at the Mechanics' Hall, 10:30 A. M. The following members were present: Drs. Preston, Old, Warinner, Wright, Martin, Dew, Boyd, Holladay, Chaffin, Williams and Corey.

After much desultory discussion concerning the signing of the pledge by the applicants, the following resolution was offered by Dr. Corey and carried: That the Board employ two professional monitors at the examinations, and do away with the pledge.

After much discussion concerning article four, section seven, the Board decided to make no change in same.

Board resolved to meet in Richmond, Va., on December 16-19, 1913.

Dr. Barney offered the following resolution, which was adopted: That reciprocity be entered into with New York. Dr. Wright moved that Mr. Karp be allowed to take the examination on Chemistry between 12 and 3 P. M. Carried.

Board adjourned.

R. S. MARTIN, President.

HERBERT OLD, Sec'y.-Treas.

PHYSIOLOGY.

Dr. J. W. PRESTON, Examiner, Roanoke, Va.

1. Follow the route of a motor impulse from the cortex to the lower extremity.
2. Give origin (a) of red blood cells.
(b) of leucocytes.
3. Describe briefly the mechanism and control of the heart beat.
4. Mention the factors essential in maintaining a normal blood pressure.
5. Describe briefly the nerve mechanism controlling the respiratory organs and state how stimulated.
6. Discuss the interchange of gases in the lungs.
7. In what form is fat believed to be absorbed and through what channels does it reach its destination.
8. What are the chief known functions of the liver?
9. Mention three of the more important internal secretions with their functions.
10. Discuss the normal secretion of urine.

EMBRYOLOGY.

1. Describe briefly the means by which the maternal nourishment reaches the foetus in the different stages of its development.
2. Describe briefly the segmentation of the ovum and state from which layers the more important structures of the body develop.

MATERIA MEDICA.

Dr. ROBT. GLASGOW, Examiner, Lexington, Va.

1. Name and give the physiologic action of the simple bitters.
2. From what source is phosphorus obtained, and what are its medicinal uses?
3. What is arsenic? Give two preparations most frequently used in medicine, with doses of each.
4. Name FOUR preparations of iron, with doses.
5. What are antipyretics? Give the two principal ways in which they act.
6. Name the official bromides, and state what is meant by bromism.
7. What are uterine sedatives? Mention several members of this group, and give the indications for their use.

THERAPEUTICS.

Dr. J. E. WARINNER, Examiner, Richmond, R. D., Va.

1. Define salvarsan, its indication and diverent modes of administration.
2. What condition of the circulation would determine your choice between strychnine, digitalis and nitroglycerine?
3. Classify the principal anthelmintics according to the kind of intestinal parasite against which they are employed.
4. What are the important contra-indications for quinine, and what drugs may be substituted in malaria?
5. Name two of the principal ways in which diuretics act, and give three drugs belonging to each class.

TOXICOLOGY.

1. Name two irritant poisons and two neurotic poisons; give their respective antidotes and antagonists.
2. Give symptoms and treatment of chronic lead poisoning.
3. Differentiate the coma resulting from opium, uremia and alcohol.

MEDICAL JURISPRUDENCE.

Dr. O. C. WRIGHT, Examiner, Jarratt, Va.

1. What acts of a person having been forced to marry may effect its legality?
2. What constitutes rape?
3. Upon what facts is "legitimacy" based?
4. Give signs of death.
5. Define expert testimony.

HYGIENE AND PREVENTIVE MEDICINE.

1. Give various sources of typhoid infection, and tell what precautions are necessary to prevent it.
2. Describe in detail how malaria is contracted.
3. Construct a model privy where there is no sewer connection.
4. How would you manage an outbreak of smallpox?
5. What insects spread disease, naming disease for which each is responsible, and explain methods of dissemination.

CHEMISTRY.

Dr. J. N. BARNEY, Examiner, Fredericksburg, Va.

1. Give the manufacture, properties and uses of P.
2. Give the preparation of Na_2CO_3 .
3. How is KClO_3 made, and give its uses.
4. State occurrence, properties and uses of (a) oxalic

acid; (b) lactic acid; (c) tartaric acid; (d) citric acid.

5. NaNO_3 and $\text{KCl} = ?$
6. Upon adding HCl to a solution, a precipitate is formed. What may it be?
7. Name the method of preparation of the three general anæsthetics.
8. Write graphic formulae: (1) Methane; (2) Ethyl alcohol.
9. Distinguish chemically between urates and phosphates in urine.
10. Give chemical test for quinine in solution.
11. Name the amyloid food changes in digestion.
12. Define:

- (1) Saleratus;
- (2) Alloy;
- (3) Dutch lead;
- (4) Butyric acid;
- (5) Alizarin;
- (6) Soap;
- (7) Caramel;
- (8) Ferment.

PATHOLOGY AND BACTERIOLOGY.

Dr. LEWIS HOLLADAY, Examiner, Orange, Va.

1. Hookworm Disease: State how infection takes place; give symptoms and pathology.
2. Osteo-myelitis: Give pathology. Differentiate from inflammatory rheumatism.
3. Give the etiology and pathology of pyelitis.
4. In what structures do the specific lesions of typhoid fever occur? What dangerous complications would you fear in typhoid ulcer of intestines?
5. What two pathological conditions result from altered secretion of thyroid gland?
6. Give the usual channels of metastatic extension of sarcoma and carcinoma respectively.
7. What do you understand by "acid-fast" bacteria? Name two examples.
8. Differentiate between serum therapy and vaccine therapy, and state the kind of immunity (active or passive) produced by each.
9. Mention three systemic diseases caused by micro-organisms, with name and chief morphologic characteristics of organisms concerned.
10. In examining a specimen of urine for the bacilli of tuberculosis, what other bacilli are liable to be mistaken for them? Give mode of differentiating them. Give in detail a method of staining the gonococcus.

THEORY AND PRACTICE OF MEDICINE.

Drs. JNO. G. RENNIE, Petersburg, and E. C. WILLIAMS, Hot Springs, Va., Examiners.

1. Give the clinical symptoms and physical signs of lobar pneumonia.
2. Give the etiology, symptoms and treatment of acute catarrhal conjunctivitis.
3. Define jaundice; give its two methods of origin, and two examples of each.
4. Differentiate diphtheria from follicular tonsillitis (clinically), and give the complications and sequelae of the former.
5. Describe a typical case of scarlet fever, giving periods of incubation and contagion, stages, symptoms, complications and prognosis.
6. Define: trichiniasis; alopecia; myopia; papilloma; tabs.

7. Give the etiology, symptoms, medicinal and general treatment of acute gastritis.
8. Give the symptoms of gastric ulcer.
9. Give the general and medicinal treatment of asthma.
10. Give the symptoms, dangers and treatment of arteriosclerosis.

OBSTETRICS AND PEDIATRICS.

Dr. W. W. CHAFFIN, Examiner, Pulaski, Va.

1. What are the functions of the liquor amnii?
2. Give the diagnosis and causes of cervical dystocia.
3. Give the management of the second stage of labor in a normal case.
4. Give in detail the management of a shoulder presentation.
5. Give in detail the treatment of an incomplete abortion without hemorrhage, and also with hemorrhage.
6. What is a high application of forceps and what a low application; give the indications for each in a head presentation?
7. Give the cause and treatment of ophthalmia neonatorum.
8. Make a differential diagnosis of intestinal colic in a child, and treat the case
9. Make a differential diagnosis of chronic ileocolitis and treat the case.
10. (a) What is infantile myxedema?
(b) What is its course when untreated, and what when properly treated?
(c) What is the best agent for its treatment?

ANATOMY AND HISTOLOGY.

Dr. P. W. BORD, Examiner, Winchester, Va.

1. Describe a dorsal vertebra, and name the peculiar dorsal vertebrae.
2. Name the superficial muscles of the abdomen, and describe the external oblique.
3. (a) What arteries form the circle of Willis?
(b) The thyroid-axis?
4. Describe the thoracic duct.
5. Describe the duodenum, and give relations.
6. (a) What is the difference between external or oblique inguinal hernia and internal or direct inguinal hernia?
(b) Name coverings of oblique inguinal hernia after it has passed through the external ring.

HISTOLOGY.

1. (a) Describe the nerve cell.
(b) What are dendrites?
2. What is the origin of all cells?
3. What are hemin or Teichman's crystals?
4. Describe the cardiac end of the stomach.

SURGERY, GYNAECOLOGY, AND GENITO-URINARY DISEASES.

Dr. H. W. DEW, Examiner, Lynchburg, Va.

1. Give indications for, and dangers in suprapubic lithotomy; perineal lithotomy.
2. What is glioma; at what age is it usually found, and from what tissue does it spring?
3. Describe direct, also oblique, inguinal hernia. Give relations of each to the epigastric artery.
4. Name the three most grave complications that may follow abscess of the middle ear, and give symptoms of each.

5. Give etiology and symptoms of right subphrenic abscess.

6. Differentiate between right renal colic and appendicitis.

7. Name the most usual dislocations of the humerus. In which is paralysis of the deltoid found?

8. Give cause and symptoms of venous thrombi. What are their dangers?

9. Give etiology and diagnosis of hyperthyroidism.

10. Ligate the external iliac artery.

GYNAECOLOGY.

11. Give anatomic relations and blood supply of the uterus.

12. Give indications for, and technique of, vaginal hysterectomy.

ALPHABETICALLY ARRANGED LIST OF APPLICANTS FOR LICENSE TO PRACTICE MEDICINE, SURGERY, ETC., WHO PASSED SATISFACTORY EXAMINATIONS BEFORE THE MEDICAL EXAMINING BOARD OF VIRGINIA DURING ITS SESSION JUNE 24-27, 1913, RICHMOND, VA.

- Amory, Otis T., Messick, Va., University College of Medicine, 1913.
- Boyle, Marshall L., Richmond, Va., University College of Medicine, 1913.
- Bullock, Henry A., Bullock, N. C., University College of Medicine, 1912.
- Bynum, Archie M., Richmond, Va., University College of Medicine, 1913.
- Cottrell, Samuel M., Diascond, Va., Medical College of Virginia, 1913.
- Corbett, Sewell Munson, Arlington, Va., George Washington University, 1913.
- Choate, Posey L., Sparta, N. C., North Carolina Medical College, 1913.
- Cox, William S., Little Plymouth, Va., University College of Medicine, 1913.
- Caudill, W. C., Roanoke, Va., Medical College of Virginia, 1913.
- Caudill, E. L., Richmond, Va., Medical College of Virginia, 1913.
- Campbell, James, Vienna, Va., Aberdeen University, 1901.
- Chance, Hugh C., Cumberland Gap, Tenn., University of Tennessee, 1893.
- Cook, George L., Waynesboro, Va., University College of Medicine, 1913.
- Dutton, Benjamin B., Richmond, Va., University College of Medicine, 1913.
- Downing, Lyburn Clinton, Roanoke, Va., Howard University, 1912.
- Elder, Jefferson Neese, Richmond, Va., Medical College of Virginia, 1913.
- Etheridge, Herbert R., Norfolk, Va., University of Virginia, 1913.
- Eckles, Beverly F., Richmond, Va., University College of Medicine, 1913.
- Earnhardt, John M., Rockwell, N. C., University College of Medicine, 1913.
- Fulton, George H., Stuart, Va., American School of Osteopathy, 1913.
- Fitzgerald, James O., Jr., Richmond, Va., University College of Medicine, 1913.
- Foley, Carroll E., Richmond, Va., University College of Medicine, 1913.

- Gould, Nathaniel J., Norfolk, Va., University of Maryland, 1913.
- Gray, Benjamin H., Fishers Island, N. Y., University College of Medicine, 1913.
- Gladstone, Charles F., Baltimore, Md., Maryland Medical College, 1913.
- Gibson, Timothy T., Middlesboro, Ky., University of Louisville, 1909.
- Garnett, A. Y. P., Washington, D. C., University of Virginia, 1898.
- Gibson, John S., Jr., Gordonsville, Virginia, University College of Medicine, 1913.
- Goodrich, George Gray, Edgerton, Va., University College of Medicine, 1913.
- Habel, James M., Gloucester Point, Va., Medical College of Virginia, 1910.
- Harman, William Claud, Vicar Switch, Va., Maryland Medical College, 1913.
- Hart, Jeremiah Aloysious, Little Falls, N. Y., Medical College of Virginia, 1913.
- Highsmith, L. L., Durham, N. C., University College of Medicine, 1912.
- Henson, Benjamin C., Poindexter, Va., University College of Medicine, 1913.
- Harrison, J. C., Tazewell, Va., University of Louisville, 1911.
- Hagood, James D., Richmond, Va., University College of Medicine, 1913.
- Highsmith, George F., Richmond, Va., University College of Medicine, 1912.
- Hertzberg, Herman, Richmond, Va., Medical College of Virginia, 1913.
- Hurt, George S., Chester, Va., University College of Medicine, 1913.
- Hawkins, H. Taylor, Richmond, Va., Medical College of Virginia, 1912.
- Johnston, Wiley W., Charlotte, N. C., North Carolina Medical College, 1913.
- Kolmer, George A. L., Salem, Va., Johns-Hopkins University, 1913.
- Kelly, Joseph Austin, Chester, Va., Long Island College, 1895.
- Lee, Ludwell F., Passapatanza, Va., Medical College of Virginia, 1913.
- Martin, Douglas D., Richmond, Va., University College of Medicine, 1913.
- McGuffin, R. K., Gallipolis, Ohio, Maryland Medical College, 1911.
- Mason, William Lloyd, Jr., Richmond, Va., University College of Medicine, 1913.
- Morewitz, Thomas David, Newport News, Va., University College of Medicine, 1913.
- Mitchell, Robert Edgar, Toano, Va., Medical College of Virginia, 1913.
- O'Connor, Charles M., Jr., University, Va., University of Virginia, 1913.
- Poindexter, Frank W., Goode, Virginia, Medical College of Virginia, 1913.
- Quillen, Vernon W., Richmond, Va., University College of Medicine, 1913.
- Rider, Ollie Allison, Richmond, Va., University College of Medicine, 1913.
- Ruff, Frank R., Richmond, Va., University College of Medicine, 1913.
- Rosenthal, Simon H., Lynchburg, Va., Jefferson Medical College, 1913.
- Reed, William Henry, Clintwood, Va., Medical College of Virginia, 1913.
- Semones, Albert Harry, Dungannon, Va., American School of Osteopathy, 1913.
- Steele, Kyle B., Mart, Va., University of Virginia, 1913.
- Smith, Ezekiel Ezra, Jr., Newport News, Va., Howard University, 1903.
- Sowers, M. L., Pocahontas, Va., University College of Medicine, 1913.
- Stryker, Robert P., Richmond, Va., Medical College of Virginia, 1912.
- Slusher, Hamilton J., Willis, Virginia, University of Maryland, 1913.
- Tabb, Henry A., Gloucester, Va., Medical College of Virginia, 1913.
- Torregrosa, Manuel F., Richmond, Va., University College of Medicine, 1913.
- Travis, John Randolph, Richmond, Va., University College of Medicine, 1913.
- Traynham, Albert Pierce, Richmond, Va., University College of Medicine, 1913.
- Verta, Camillo, Richmond, Va., Naples University, 1893.
- Willis, R. G., Richmond, Va., University College of Medicine, 1913.
- Whitehead, Robert, Richmond, Va., University College of Medicine, 1913.
- Whitacre, H. S., Whitacre, Va., American School of Osteopathy, 1913.
- Webb, S. Edgar, Draper, N. C., University of North Carolina, 1908.
- Willis, C. G., Lignum, Va., University College of Medicine, 1913.
- Weinstein, Abram I., Richmond, Va., Medical College of Virginia, 1913.
- Woodhouse, Robert W., Jr., London Bridge, Va., University College of Medicine, 1913.
- Yancey, S. M., Charlottesville, Va., College of Physicians and Surgeons (Maryland), 1886.
- Young, William Walter, Richmond, Va., Johns-Hopkins University, 1913.
- Zimmermann, G. L., Andersonbury, Pa., Baltimore Medical College, 1913.

INQUISITIVE STUDENT IN ANATOMY CLASS ASKS

- Where can a man buy a cap for his knee?
Or a key for a lock of his hair?
Can his eyes be called an academy,
Because there are pupils there?
- In the crown of his head what gems are set?
Who travels the bridge of his nose?
Can he use when shingling the roof of his mouth
The nails on the end of his toes?
- What does he gain from slip of his tongue?
Who plays on the drums of his ears?
And who can tell the cut and style
Of the coat his stomach wears?
- Can the crook of his elbow be sent to jail?
And if so, what did it do?
How does it sharpen his shoulder-blades?
I'll be hanged if I know—do you?

—*Pedic Items.*

INSTITUTIONS REPRESENTED BY APPLICANTS WHO CAME BEFORE THE MEDICAL EXAMINING BOARD OF VIRGINIA SUMMER SESSION, AT RICHMOND, VA., JUNE 24-27, 1913.	Total Number of Applicants from Each College	Total Number of Applicants Licensed from Each College	Total Number of Applicants Rejected from Each College	Incom- plete or Withdraw
†American School of Osteopathy.....	3	3	..	..
*Leonard Medical College.....	3	..	2	1
University College of Medicine.....	35	32	1	2
Medical College of Virginia.....	30	16	14	..
University of Virginia.....	4	4	..	..
Howard University.....	2	2	..	..
Meharry Medical College.....	1	..	1	..
George Washington University.....	1	1	..	..
University of Louisville.....	2	2	..	..
*Maryland Medical College.....	4	3	1	..
University of Maryland.....	2	2	..	..
*North Carolina Medical College.....	2	2	..	..
P. & S., Baltimore.....	1	1	..	..
University of Tennessee.....	1	1	..	..
Jefferson Medical College.....	1	1	..	..
Naples University.....	1	1	..	..
Long Island College.....	1	1	..	..
Lincoln Memorial University.....	1	..	1	..
Aberdeen University.....	1	1	..	..
Johns Hopkins University.....	2	2	..	..
University of North Carolina.....	1	1	..	..
Baltimore Medical College.....	1	1	..	..
P. & S., Chicago.....	1	..	1	..
TOTAL	101	77	21	3

†Graduates have to meet preliminary educational requirements and are limited to the Practice of Osteopathy.

*Registered before new statute was enforced, or have been in active practice for 5 or more years.

Analyses, Selections, Etc.

Fistula in Ano.

P. L. Mummery says that it is a great mistake to operate upon a fistula when there is acute inflammation. When much pus is being discharged, or a large abscess is present, the operation should not be performed. The proper treatment in such a case is to insure that there is free drainage, if necessary by enlarging the existing openings for the purpose, and to have the tracks and pockets frequently irrigated with peroxide of hydrogen or some suitable antiseptic solution. Frequent fomentations and hot baths will also assist in the process of cleaning up a fistula. This often means delay which is irksome to the patient, who naturally desires to get the operation over as soon as possible. It is, however, of considerable importance in obtaining a good result, and saves time in the end, as it much reduces the size of the wound which has to be made when the fistula comes to be operated upon.

The simplest kind of fistula to operate upon is that in which there is one straight track between the external and internal openings. Before proceeding to deal with the fistula it is most important in all cases to make a very thorough examination with a view to ascertain-

ing that there are no other tracks or complicating conditions. One is often able to find out considerably more about a fistula when it is examined under an anesthetic than it was possible to discover when the fistula was examined in the consulting-room. Not infrequently it will be found that a fistula, which was previously thought to be quite a simple one, proves on examination to be a complicated one, there being deep tracks hitherto undetected. Supposing, however, it has been found that the fistula is a simple one, a curved steel director with a fairly thick point should be passed up the track of the fistula through the external opening, and made to emerge through the internal opening of the fistula and out at the anus. If a director with a very fine point is used it may easily be pushed through the wall of the fistula and part of the track will thus be missed. The director being in place, all the tissues overlying it should be divided with a knife, either by passing a curved bistoury along the groove of the director and slitting up the tissues by transfixation, or by cutting down on the director with an ordinary scalpel. The director is then free and may be removed. A clip is next fixed to the skin at either side of the wound to act as a retractor and the wound is held open by the assistant. All granulation tissue lining the fistulous track is then scraped away with a Volkmann spoon and the fibrous track left is carefully examined in

a good light to make sure that there are no other tracks, the opening of such tracks, where they exist, being generally seen as dark holes lined with granulation tissue. If there is a large amount of very dense fibrous tissue, it is a good plan to cut into it in one or two places. This was originally pointed out by Mr. Salmon, and has since been known as "Salmon's back-cut." Lastly, the edges of the wound must be freely cut away so as to leave a nice open wound without overhanging edges. Healing occurs much more quickly in a wound which is open than in a narrow slit with thick, overhanging edges; and, moreover, the resulting scar is smaller and less unsightly. After all the cutting has been finished the wound should be examined for bleeding points. Any vessels that spurt should be caught in clips and tied off with fine silk. It should, however, be borne in mind that the fewer ligatures left in the wound the better for rapid healing. General oozing can easily be controlled by plugging the wound with pieces of wool. In the case of a fistula where there is a deep wound and much oozing which it is difficult to control, a large vulcanite tube can be placed in the rectum after plugging the wound. This will usually efficiently control any free oozing. The point to bear in mind when operating on a fistula is that the whole fistulous area must be freely drained and the wound so planned that not only will there be free drainage when the operation is complete, but that the drainage will remain efficient until all the deeper part of the fistula is healed.

In referring to after treatment, Mummery advises frequent changing of the dressings. The patient is allowed to sit in a hot bath containing a little antiseptic twice a day. Free drainage is the wound plugged. Free drainage is essential and to this end the author applies a bit of sterilized wool. Superficial healing is thus prevented and granulation and healing from the bottom follows rapidly.—(*The Lancet*, July 12, 1913.)

Simple Means for Enlarging a Contracted Pelvis.

Freudenthal (*Berlin Klin. Woch.*) describes a measure with which he found that the pelvis opened enough to permit the birth of a living child when preceding pregnancies had always required the sacrifice of the child. A cushion was placed under the patient's sacrum and the

knees were drawn up to the middle of the abdomen during each labor pain. As the patient was unable to do this herself it was done by the attendants, one on each side, each forcibly pressing the patient's knee against the center of the abdomen, the legs turned outward. By this passive fixation of the femurs the gluteal and other muscles attached to the trochanters pulled the ilium outward on each side. This apparently stretched the ligaments of the sacro-iliac articulation, the promontory sank backward and the whole pelvis became enlarged.—(*Merck's Archives*, June, 1913.)

Treatment of Alcoholism.

Geo. E. Petty, Memphis, says that the power of ichthyol to increase the appetite and to promote digestion and assimilation of the food with rapid increase in weight led him to make use of it as a flesh-builder and an appetizer in all conditions where such a remedy was indicated, and this use has been attended by most satisfactory results.

In the treatment of chronic catarrh of the stomach of alcoholics the author formerly depended upon hydrastine or berberine with petroleum emulsion, but, while these are excellent remedies, they are so much inferior to ichthyol that they are not in any sense to be compared with it.

The power of ichthyol to contract dilated capillaries when applied locally to a mucous membrane has been long known, and the author is of the opinion that this probably accounts to some extent for the happy effect it has on the catarrhal conditions of the stomach in alcohol cases. Whether this be the explanation or not, the author cannot say, but from his wide clinical experience with it he is able to say that it meets the indications in these cases most perfectly; in fact, so perfectly that he does not hope for anything better.

Patients object to taking ichthyol for a few days, because of the sulphurous eructations from it, but its antiseptic effect arrests all fermentation in the stomach within three or four days from the time its use is begun, if taken regularly, and then it is no longer objectionable. There is no advantage in putting it in capsules, because the eructations are the disagreeable part of its effects, and these occur just as badly if the remedy is given in capsules as if given in

solution; therefore, the author has long since abandoned any effort to give it that way.

It is best used in a 25 per cent solution, and this should be still further diluted when it is administered to obviate any irritation that might occur. Cinnamon water disguises the taste to a greater degree than any of the other aromatic waters.

The following formula, usually employed by the author, has been the most satisfactory in his hands:

R

Ichthvol. ̄j

Garantose.

Sodii Bicarbonatis. aa. gr. iv

Aquae Cinnamomi. ̄ij

Aquae Purae. q.s. ad ̄iv

M. et ft. sol.

Sig.: Teaspoonful before each meal.

The garantose (saccharine), one grain to the ounce of mixture, sweetens it just sufficiently to take away the bitter taste, and the soda is added to render the garantose soluble; otherwise, these ingredients have no value in the prescription.—(*Ibid.*)

Facts and Fiction About Venereal Prophylaxis.

Far from being preventive, R. A. Bachmann, U. S. Navy, says that the method adopted by the Army and Navy has not resulted in reducing the amount of venereal disease in those branches, with the exception of an apparent decrease in individual instances. In fact, he thinks that the system employed is the cause of the continued high incidence of infection, and gives the following reasons:

First, it has never been demonstrated that calomel salve or any urethral injection delayed for eight or more hours has any preventive power.

Second, it is the exception to find calomel salve made according to Metchnikoff's formula.

Third, sailors being assured that a means of protection has been provided for them aboard ship, become careless, taking chances they would otherwise avoid.

Efforts are now being made to introduce tube prophylaxis, the tubes containing 33 1-3 per cent. calomel in lard and lanoline with 2 per cent tricoresol as adjuvant, one-half of the contents used in the urethra, and the remainder well smeared over the penis preventing all infections.

The tube is made with a rubber tip which permits of its being used in the dark and of the salve being introduced within the urethra beyond any possible area of infection.

Dr. Bachmann states that the dies, molds, etc., used in the manufacture of the tubes are at the unconditional disposal of any society or organization upon the mere assurance that the tubes so manufactured will not be sold for gain and solely for the purpose of lessening the great prevalence of venereal diseases.—(*Critic and Guide*, September, 1913.)

The Relationship of Pituitary Extract to Urinary Flow.

Two or three months ago we called attention to the advances which are being made in our knowledge concerning the interrelationship of the various organs of internal secretion, some of these being opposed to one another in function and others acting together to produce the same result. Furthermore, it is becoming evident that much glandular activity is induced by the presence of hormones which active glands otherwise inert.

Extraordinary as have been the discoveries, within the last few years, concerning the physiologic properties and therapeutic powers of adrenalin, it may be truthfully said that the effects of pituitrin derived from the posterior lobe of the hypophysis are even more extraordinary; and the gains in our knowledge concerning this remarkable, yet small, body, have been by leaps and bounds from the standpoint of physiology, pathology, surgery, diagnosis, and therapeutics.

Extract of the pituitary body (pituitrin) naturally found its first field of usefulness as a substitute for adrenalin, since its local effects upon the capillaries when it is directly applied, and its influence upon the heart and vascular system when it is introduced intravenously, are identical in kind although differing in degree, the most noteworthy difference probably being that the effects of pituitrin are not induced so suddenly but are much more prolonged. Another advantage of pituitrin seems to be that when given hypodermically it possesses a considerable degree of physiologic activity along the lines just indicated, which can hardly be truthfully said of adrenalin.

Equally important, if not more so, has been the discovery that in this substance we possess

one of the most efficient uterine stimulants or oxytocics. While it does not seem to induce uterine contractions in the pregnant uterus until there has been some dilatation of the os, it may be fairly said to be even more reliable than ergot and to be better, in that the uterine contractions which it induces are to and from and, therefore, represent normal contractions in distinction from the powerful tetanic contraction induced by ergot. The universally favorable reports which have been made by obstetricians concerning the use of pituitrin in cases of uterine inertia have assured it a place in obstetric practice.

For a number of years Cushing has devoted a large amount of time and energy to the study of this important body. While surgical conditions of the pituitary gland are quite rare, comparatively speaking, he has shown us how a diagnosis of disease of this gland can be made, and also revealed the measures which should be introduced for the relief of the patient. As with many other researches carried out by able men, he has also developed additional facts which have a most important bearing upon clinical medicine and therapeutics. Thus, his researches show (and they are confirmed by other investigators and by a number of clinicians who have studied cases which have afterward come to autopsy) that there is a very close relationship between diabetes insipidus and disease of the pituitary body. It is only fair to remember, however, that as long ago as 1901 Schäfer and Magnus showed that extract of the posterior lobe of the pituitary body possesses very strong diuretic properties. Schäfer and Herring in 1906 showed that with this diuresis there is a marked increase in the volume of the kidney and that the renal arteries are not constricted by the drug, as are the arteries of the general system, but are dilated. In other words, with a rise in general blood-pressure and a relaxation of the renal vessels the kidney is flooded with blood, and it would seem probable that the pituitrin also simultaneously stimulates the renal epithelium. In other words, it is truly an active diuretic. Of course, we cannot expect it to produce all the effects which are desired in advanced renal disease when the secreting epithelium is destroyed, but we apparently have in our hands a remedy which can do much toward reestablishing urinary secretion in cases

of acute suppression following injury due to traumatism or surgical interference, and also possess advantage in some of the acute infectious diseases when renal activity is very torpid. Last of all, it is interesting in this connection to know that the drug seems to act as an efficient stimulant upon the muscular fibres of the bladder, and therefore can be used for the purpose of stimulating this organ to the expulsion of urine, as when it is feeble as the result of over-distention or when it is inactive as the result of an injury which reflexly has impaired its power.

The point made by Cushing that many cases of diabetes insipidus are not due to disorders of the nervous system but to disease of the hypophysis is a point in clinical medicine and diagnosis which should be borne in mind.—(*Editorial, Therapeutic Gazette, September, 1913.*)

Book Announcements and Reviews

The Semi-Monthly will be glad to receive new publications for acknowledgment in these columns, though it recognizes no obligation to review them all. As space permits, we will aim to review those publications which would seem to require more than passing notice.

Organic and Functional Nervous Diseases—A Text-Book of Neurology. By M. ALLEN STARR, M. D., Ph. D., LL. D., Sc. D., Professor of Neurology, College of Physicians and Surgeons, the Medical Department of Columbia University; Ex-President of the American Neurological Association, and of the New York Neurological Society, etc. Fourth Edition, thoroughly revised. 8vo. 970 pages, illustrated with 323 engravings in the text and 30 plates in colors and monochrome. Cloth. Price, \$6.00, net. Lea & Febiger, Philadelphia and New York. 1913.

Starr's text-book has been before the profession sufficiently long as an authoritative work to establish its claims for recognition wherever nervous diseases are considered. The demand for this fourth edition has given the author an opportunity for a careful revision of its contents, for many additions, and for certain changes of arrangement that were thought would make it of greater value to the student and practitioner. Throughout the work the author has endeavored to utilize his personal observation and experience in the presentation of each subject.

Text-Book of Physiology—Including a Section of Physiologic Apparatus. By ALFRED P. BRUBAKER, A. M., M. D., Professor of Physiology and Medical Jurisprudence in the Jefferson Medical College, etc. Fourth Edition, revised and enlarged, with 1 colored plate and 377 illustrations. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut Street. 1912. 8vo. Cloth. 736 pages. Price, \$3.00 net.

For the use of students as a text-book, and as a reference for the practitioner of medicine, Dr. Brubaker's Physiology should satisfy the seeker after a work that is not alone standard and authoritative, but is also concisely and simply expressed. The preparation of this latest edition has furnished opportunity for revision where this was deemed advisable as well as for the incorporation of new matter. The additions relate largely to the mechanic movements of the stomach and intestines and the nerve mechanisms regulating them; the digestion and absorption of the proteins; the viscosity, specific gravity and coagulability of the blood; the physiologic mechanism of the heart and the properties of the cardiac muscle; the venous pulse; the auscultatory method of determining blood pressure; the modifications of the respiratory rhythm; the physiologic action of the pituitary gland and the adrenals, etc.

Surgical Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. Volume II, Number 4. (August 1913). 8vo. 208 pages. Illustrated. Philadelphia and London: W. B. Saunders Company. 1913. Published Bi-Monthly. Price per year: Paper, \$8.00; Cloth, \$12.00.

Digest of Comments on the Pharmacopoeia of the United States of America (Eighth Decennial Revision) and on the National Formulary (Third Edition) for the Calendar Year Ending December 31, 1911. Bulletin No. 87, August 1913, Hygienic Laboratory, U. S. Public Health Service. By MURRAY GALT MOTTER, A. M., M. D., and MARTIN J. WILBERT, Ph. M. Washington: Government Printing Office. 1913. 8vo. 683 pages. Paper.

Uncomplicated Pregnancy and Labor—Presenting a Simple Scientific Method of Treatment of the Disorders of the Pregnant Term, for Their Cure, and for the Prevention of the Complications of Labor, to Induce a Normal Balance of All Functions, so that a Labor Without Pain, in Very Large Part, is the Result. By FINLEY ELLINGWOOD, M. D., Chicago. Published by Ellingwood's Therapeutist, 32 North State Street, Chicago. 12mo. 160 pages. Cloth.

Hieronymus Fracastor's Syphilis—From the Original Latin—A Translation in Prose of Fracastor's Immortal Poem. 8mo. 58 uncut pages. The Philmar Co., St. Louis, Mo., 1911.

Keen's Surgery—Volume VI. The newest Surgery. By 81 eminent surgeons. Edited by W. W. KEEN, M. D., LL. D., Hon. F. R. C. S. (Eng. and Edin.), Emeritus Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia. 8vo., 1177 pages, with 519 illustrations, 22 in colors. Philadelphia and London: W. B. Saunders Company, 1913. Entire work, consisting of six volumes, per volume: Cloth, \$7.00 net; half Morocco, \$8.00 net.

Volume VI of this work is intended as a supplement to the five volumes published between 1906 and 1909, and contains a full discussion of surgical advances since that period. Keen's System is thus brought fully abreast of the present status of surgery, and is exhaustive and complete in every detail.

Editorial.

Perhaps New Help in the Diagnosis of Appendicitis.

Text-books and medical literature in general tell us that appendicitis is known by the cardinal symptoms—fever, muscular rigidity, and tenderness over McBurney's point, with gastric disturbances. Also, that "deep pressure always reveals localized tenderness at some point in the abdomen, if the case is one of appendicitis. Palpation also detects an abnormal rigidity of the right rectus abdominis muscle." The writer cannot agree with this authoritative statement. For "deep pressure" frequently elicits "localized tenderness" in the left inguinal, left lumbar, left hypochondriac, epigastric and other abdominal areas when the appendix is not at fault and when palpation detects no rigidity of the right rectus muscle. But when we find all the characteristic features, which we must acknowledge is none too frequent and to be deplored on account of the welfare of our patients, it is an easy matter for us to be pretty sure that we are dealing with a case of appendicitis.

Surgeons have taught us that we must recognize appendicular abnormalities early—very early—if we wish to save our patients. The writer would go a step further and say "still earlier," if we are to be guided by the mandatory symptoms of fever, tenderness over McBurney's point, right rectus rigidity, pain on deep pressure anywhere in the abdomen and gastric

(vomiting) disturbances. To do the quickest and most lasting good, removing the offending condition "still earlier" rather than "early," we must get a perspective knowledge of the abnormal condition of the appendix even before the classical symptoms call us to the bed-side of the patient.

The writer wishes to present one or two items of practical personal experience and observation which he has not seen mentioned in medical literature. For some years we have made it a rule to instruct all patients who complain of occasional or frequent pain or tenderness in the region of the appendix, to have the bowels moved quickly by a full dose of good fresh Epsom salts. If the pain or tenderness or both, as the case may be, markedly lessens or altogether subsides, we at once make an interrogatory diagnosis of appendicitis. Especially is this true in the differential diagnosis of appendicitis and ovaritis. If relief follows, it is appendicitis; if not, it is probably ovaritis. And so far, the developments of time have borne us out.

But of still greater value is the information elicited by position of the patient. With or without fever, muscular rigidity and with a minimum of pain or tenderness—in fact, with no pain to attract the patient's attention—if you have the patient to lie first on one side and then on the other side, you will find that he will complain of undue discomfort or increased pain when lying on the left side, and he is at once made more comfortable or entirely relieved as soon as he turns back on his right side. We have made four diagnoses of appendicitis on this expression of postural discomfort and pain in the past three weeks and exploratory findings confirmed our diagnoses.

We have never seen this postural symptom mentioned in any medical writings, nor have we found any surgeon who has observed it. Give the matter your honest attention, and we feel confident that you will find it as dependable a clinch on the diagnosis of appendicitis as pain or tenderness over McBurney's point. For any feeling of discomfort or soreness, paroxysmal or constant, even where the pain may be referred to any point in the abdomen and before it becomes more distinctly localized in the ileocecal region, this postural information is an almost, if not altogether, pathognomonic symptom of appendicitis.

In one of our recent cases, fixed tenderness was far below the usual point—so low indeed as to create doubt as to appendicitis in the mind of the consulting physician. In only one of the four cases was localized tenderness at McBurney's point. There was no abnormal rigidity of the right rectus, and in two cases there was no rise of either temperature or pulse. Three cases gave no evidence of gastric disturbance. Localized tenderness was detected in one case by bimanual (rectal) examination. All gave the postural symptom of increased discomfort when turned on the left side.

STEPHEN HARNSBERGER, M. D.

The Medical Society of Virginia

Meets for its forty-fourth annual session at Lynchburg, October 21-24, so that a period of about a week intervenes between now and when the session begins. The officers have worked hard for success, and in a letter sent members of the Society by Dr. Geo. J. Tompkins, Chairman of the local Committee of Arrangements, it is announced that the Lynchburg profession has prepared social features that will make the program enjoyable, and each one is urged to come. Hotel accommodations will be ample, The Virginian, at which the meetings will be held, being very commodious and entirely new, while Hotel Carroll, which has been recently remodeled, is nearby, and can care for a large number.

The Secretary, Dr. Irving, informs us that over seventy papers have been promised, the interest thus displayed by so many authors likely indicating the probabilities for a large attendance. In addition to the invited guests named in a previous issue there are expected a representative each from the U. S. Army, Navy and Public Health Service.

The President, Dr. Southgate Leigh, has bent much of his energy towards the formation of County Societies in different sections of the State, and a number of societies have been formed as the result.

Let us again urge those who are not members that they should join their State Society, for it will benefit them in many ways. It goes without saying that those who are already members should continue their efforts to persuade all worthy physicians to unite with us at this meeting.

The Association of Surgeons of the Norfolk and Western Railway

Held its sixth annual convention at the Chamberlin Hotel, Old Point Comfort, Va., October 2-3, the President, Dr. Jos. A. Hall, of Cincinnati, presiding. Addresses of welcome were delivered by Hon. S. Gordon Cumming, of Hampton, and Col. I. A. Haynes, Commander of Fort Monroe. These were responded to by Dr. J. W. Simmons, of Martinsville, Va. Dr. Jos. A. Gale, Chief Surgeon of the N. & W. Railway, then gave a short talk. The scientific papers on the program were of a high order, and possibly deserving of special mention were those by the two invited guests, Dr. Jno. A. C. Gester, of New York, who took for his subject *Treatment of Fractures of the Femur by Nail Extension*, and Dr. E. B. Claybrook, of Cumberland, Md., whose paper dealt with *Brain Injuries*.

Officers were elected for the ensuing year as follows: President, Dr. S. S. Gale, Roanoke, Va.; Vice-Presidents, Drs. P. H. Kelly, Vivian, W. Va., W. B. Morrison, Hagerstown, Md., Geo. Marshall, Portsmouth, O., and R. E. Venning, Charles Town, W. Va.; and Secretary-Treasurer, Dr. T. D. Armistead, Roanoke, Va., re-elected. The next place of meeting will be determined later.

The social features of the meeting were especially fine, and included a trip past the battleships at the Portsmouth Navy Yard, an oyster roast at Buckroe Beach, a trolley ride to Soldiers' Home, Hampton, an inspection of Fort Monroe and dress parade by the garrison, followed by a complimentary band concert.

This notice would be incomplete without reference to the handsome way in which the Railway Company provided for its surgeons and the accompanying members of their families, who were guests of the Road, not only at the Hotel, but also *en route* to and from the meeting. We know of no other Road that treats its surgeons so generously, and it speaks volumes for the efficient services of their Chief Surgeon, Dr. Jos. A. Gale, whose efforts were heartily endorsed by the General Manager, Mr. A. C. Needles, that the Company should have entertained so splendidly.

Lunenburg County (Va.) Medical Society.

Pursuant to a call from Dr. Southgate Leigh, President of the Medical Society of Virginia,

a meeting of the members of the medical profession in Lunenburg County was held in Victoria on September 16th, and the Lunenburg County Medical Society was organized. The following officers were chosen: Dr. T. C. Harris, of Kenbridge, president; Dr. Walter E. Vest, of Meherrin, vice-president; Dr. Edward P. Odend'hal, of Victoria, secretary. Drs. W. D. Kendig and W. E. Vest were elected delegates to the Lynchburg meeting of the Medical Society of Virginia. The next meeting will be held in Kenbridge on the 9th of December.

New Hospital for Alexandria, Va.

The Board of Trustees of the Alexandria Hospital, at a meeting the last of September, decided to erect a new hospital at a cost of not less than \$50,000. The work of soliciting subscriptions for this purpose will be begun at once, as the present hospital is deemed inadequate for the needs of the city.

Southampton County (Va.) Medical Society.

On September 12th, the physicians of Southampton County met at Courtland, and organized the above named society with sixteen charter members (all in the county but seven). The following officers were elected for the first year:—President, Dr. W. B. Barham, Newsoms; vice-presidents, Drs. R. H. Cobb, Franklin, and G. H. Musgrave, Branchville; secretary-treasurer, Dr. E. F. Reese, Courtland, and assistant secretary-treasurer, Dr. Geo. W. Hayes, Franklin.

The next meeting will be held at Courtland, Va., November 4th, and Dr. J. C. Rawls, of Franklin, is to read a paper for general discussion on "La grippe." Meetings will be held quarterly thereafter.

The Virginia Health Department

Has tabulated and will shortly publish the records of births and deaths for the first twelve months' vital statistics ever compiled in Virginia. The vital statistics law became effective in this State July, 1912, and the report for the first year while regarded as most satisfactory has revealed some surprises *pro* and *con* with regard to the mortality from a number of diseases. It is believed that the birth records are fuller from rural sections than the cities, as it is the opinion of the Board that a number of births among the colored population are not reported in the cities.

In cases of emergency, diphtheria antitoxin may be procured from the Department at all hours, as an employee of the Board is now on duty from 5 P. M. to 9 A. M., and will send out orders by the first train leaving Richmond.

The September, *Virginia Health Bulletin* gives a revised register of physicians in private practice, county and city health officers, registrars of births and deaths, for 1913, and information as to how and where to secure help of the State Board of Health for both physicians and patients. This and other Bulletins will be sent any one free upon request of State Health Department, Richmond.

The Accomac (Va.) Medical Society,

At their annual meeting held in Onley, September 24th, elected the following officers for the ensuing year:—President, Dr. Fletcher Drummond, Parksley; vice-president, Dr. R. R. Nevitte, Temperanceville, and secretary-treasurer, Dr. John W. Robertson, Onancock (re-elected).

The Section on Medicine reported, Scarlet Fever being the subject, and there were numerous discussions and papers, among which may be noted those of Drs. Hiden, Nevitte, Fosque and Edgar W. Robertson.

It is reported that the meetings of this Society are very helpful to its members both socially and scientifically.

Surgeon L. L. Lumsden,

Who is well known in this State, has been detailed by the U. S. Public Health Service to investigate an outbreak of typhoid fever in Martinsburg, W. Va., in co-operation with local health authorities. He will later proceed to Durham, N. C., to inquire into the prevalence of pellagra in that locality.

The Southside Virginia Medical Association,

At its Suffolk meeting, September 9th, selected Kenbridge, Va., as the place for its next meeting, December 9th. The subject for general discussion will be a Symposium on Pneumonia. The leaders will be Dr. Geo. W. Hayes, Franklin, on "Etiology, Pathology and Diagnosis," and Dr. E. L. Kendig, Victoria, on "Prognosis and Treatment."

Lt. C. W. McMillan, U. S. A.,

Joined Ft. Myer, Va., September 27th.

The American Public Health Association,

Which met at Colorado Springs, Col., September 9-12, elected Dr. W. C. Woodward, Washington, D. C., president, and Mr. S. Poulterer Morris, of Denver, Col., secretary. Dr. E. C. Levy, Chief Health Officer of this city, was re-elected secretary of the section of public health officials.

The Association of Surgeons of the Seaboard Air Line Railroad

Will hold their annual meeting in Montgomery, Ala., October 29-30, Dr. John H. Miller, of Cross Hill, S. C., presiding. Dr. J. W. Palmer, of Ailey, Ga., is secretary-treasurer. The association was to have convened in Petersburg, Va., the home town of the chief surgeon of the road, Dr. Jos. M. Burke, but the place of meeting was changed on account of reconstruction work on the principal hotel in that city.

Married—

Dr. Frederick Murchison Hodges, of Richmond, Va., and Miss Pauline Anita Muller, of Baker, Oregon, on October 8th;

Dr. E. Hale Connelly, of Alberta, Va., and Miss Nellie Payne, of Brunswick County, Virginia, on September 24th, and

Dr. John W. Robertson, Onancock, Va., and Miss Lula Conway Price, Snow Hill, Md., October 2nd.

Experimental Laboratory Work.

Dr. J. Shelton Horsley, of this city, gave an interesting exhibition of experimental work in his laboratory, October 3rd, when he did an operation for the reversal of circulation in the neck.

Pellagra in Mississippi.

The United States Public Health Service announces that from January through June, 1913, 648 cases of pellagra were reported among the white population in Mississippi, and 665 cases among the colored. In addition to these, it was found that there were a number of cases which had not been reported by county health officers. From November, 1912 through June, 1913, there were 101 deaths among the whites, and 245 deaths among the colored. These figures will be found especially interesting in view of the fact that Mississippi is one of the States in which pellagra is most prevalent.

A Drug Trade Conference

Between the representatives of the different medical and pharmaceutical societies of New York State was held at the Grand Central Palace in New York City, October 2-9. Mr. Herman A. Metz, of the Farbwerke-Hoechst Company, of that city, was chairman of the Conference Committee. The object of the Conference was to bring about a better co-operation between these closely allied professions. A large attendance was expected.

Hygiene To Be Taught in Indiana Schools.

By and act passed March 14, 1913, the public schools of Indiana are required to make provision for the illustrative teaching of the anatomy, physiology, and hygiene of the human system; the effects of alcohol and nicotine; the cause and course of consumption; the dissemination of diseases by rats, flies and mosquitoes, and the effects thereof, and the prevention of diseases by the proper selection and consumption of food. A fine is to be imposed upon any school official violating any section of this act.

The American Academy of Ophthalmology and Otolaryngology

Will hold its eighteenth annual meeting in Chattanooga, Tenn., October 27-29. An address of especial interest to be given before the Academy is that of Col. R. H. Elliott, Superintendent of the Government Ophthalmic Hospital, Madras, India. Dr. John W. Murphy, of Cincinnati, and Dr. Lee M. Francis, of Buffalo, N. Y., are president and secretary, respectively.

Anti-Rabic Treatment Popular in Florida.

Florida Health Notes reports that over 200 persons in that State have taken the anti-rabic treatment through the State Board of Health since January, 1912.

Indian Medical Record—Special Tuberculosis Number.

Owing to the prevalence and mortality of tuberculosis in India, and the fact that it is making rapid progress, the *Indian Medical Record* will, in December, 1913, issue a Special Tuberculosis Number, which will have contributions from men who have made a study of the disease. In a communication, the editors state that they would be glad for doctors to contribute

articles or short notes bearing the prevention and treatment of tuberculosis, based on personal experience. Such articles should be sent the Editor of the above journal, at Calcutta, India, so as to reach him by the middle of November, 1913.

Status of Cholera in Roumania.

From *Public Health Reports* for October 3rd, we not that during the week ended September 3, 1913, there were notified in Roumania 183 deaths from cholera. The total number of cases of the disease notified in Roumania from the outbreak of the disease to date was 1,051, with 458 deaths. In the army, which consists of about 400,000 men, the number of cholera deaths notified from August 29th to September 3rd was 1,186.

Result of Eugenic Marriage Law in One State.

It is reported that as a result of the passage of an eugenic marriage law in North Dakota, over twenty certificates for marriage were refused in that State in September.

Dr. and Mrs. Rudolph Teusler,

Formerly of Richmond, Va., but more recently of Tokio, Japan, have recently been on a visit to relatives in this and other Virginia cities.

Common Drinking Cups Abolished in Minnesota.

An act prohibiting the use of common drinking cups in public places became effective in Minnesota July 1, 1913.

The International Congress on Alcoholism,

Which held its fourteenth annual meeting in Milan, Italy, in September, selected Atlantic City, New Jersey, for its 1914 meeting.

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THE TREATMENT OF THE RESULTS OF ANTERIOR POLIOMYELITIS.

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Anterior poliomyelitis (infantile paralysis) was first systematically described in 1840 by Heine, but our knowledge of the condition during the next fifty or sixty years was confined to the reports of occasional outbreaks, chiefly of small size and for the most part occurring abroad. It is only during the last decade that the gradually increasing prevalence of the disease in this country, occurring in the form of more and more extensive epidemics and spreading from one ocean to the other, has caused the bureau of public health of the United States government, the various state health commissions, and the laboratories of original research to take up its study with great thoroughness.

Thanks to this greatly added interest, several very important facts concerning the etiology of the disease have been discovered, chiefly as a result of the work carried out in the Rockefeller Institute of New York by Flexner, Lewis, Noguchi, and others, who have isolated a filterable virus with which they have been able to reproduce the disease in many generations of a certain species of monkey and more recently have even identified the organism itself, while Rosenau of Boston has demonstrated that the stable fly may be one of the chief carriers if not the only carrier, of this disease. As a result of this thorough study, we may hope that the day is not far distant when these epidemics will be satisfactorily controlled, but in view of the fact that the damage is usually done in the individual attacked before it is possible to make

the diagnosis certain, our advance in combating the disease will be for a long time through prophylactic measures only.

But little progress has been made in the treatment of the disease in its acute stage. The fatalities occur usually in the first few days, due for the most part to interference with respiration, and the mortality is often as high as twenty per cent, but it is with the cases which have recovered from the acute onset that we are for the most part concerned because of the lifelong crippling which is the result in a large majority.

The motor paralysis, the chief and most serious result of the acute general infection develops within a few hours or days after the onset of the first symptoms which consist usually of high fever and disturbances of the gastrointestinal or respiratory tracts. Within a few days the maximum degree of paralysis is reached and then there is a rapid diminution in its extent during several weeks without apparently any regard to the treatment applied. The slow but steady improvement which usually ensues from this time until the end of the first and even of the second year is, however, greatly influenced by treatment, and it is with this stage and the stage of permanent disability with which the different forms of treatment to be referred to have to deal.

During the first year and especially during the first few months, the treatment should aim to promote the resolution of the inflammation within as limited a field as possible and the keeping of the affected muscles in the best possible condition for taking up their work when the nerve impulses shall return. To this end several means are employed. Electricity, especially with the galvanic current, has its place during the first few months, but the general belief in its value is on the wane and it certainly is of very little importance later and

should not be advised in the average case after the first year. It can be applied in two ways: first, directly to the spine; second, to the affected muscles. Its action is chiefly tonic.

Far more efficient during this period is massage of the affected muscles which may be commenced as soon as the local tenderness has disappeared. Its object is to keep the muscle cells, blood vessels and other tissues in normal condition and to bridge over the gap during which they cannot be voluntarily used. In addition, the institution of active hyperaemia, which tends to improve the badly impaired circulation in the affected parts, is of value, while passive and active movements of the muscles are of the utmost importance, the first applied during the early stage and the latter added to the former as the muscle strength returns. When affected muscles are recovering but slowly, or when intact muscles must be made to do the work of more or less distantly related muscles which are lost, the education of these muscles is of the greatest importance and if it is not systematically carried on the results are often extremely disappointing.

Combined with this stimulating and preserving of the softer tissues, the importance of keeping the affected joints in the proper position cannot be over-estimated. Thus, the prevention of early toe-drop due to the unequal action of the muscles of the ankle joint or even to gravity alone, by the use of a light plaster-of-Paris right-angle splint, will save the necessity in the future of tenotomies and manipulations by preventing the contractures which are otherwise almost certain to occur. The tendency of the knee to become flexed for the same reason is second in importance only to the ankle and is to be prevented by a similar fixation in extension. At the same time that apparatus is being used to prevent deformity, it also has its value in bringing about early use of the affected limbs and thus increasing the rapidity of their return to an approximation of their normal condition. I do not feel that there is any danger of permanently injuring or weakening muscles by the use of apparatus in this stage if it is so applied as to prevent undue strain and permit so far as possible use of functioning muscles.

In the third stage of the disease the problem is somewhat different. Here the hope of further improvement on Nature's part is gone

and our task is to make the more or less impaired structures of locomotion accomplish the greatest amount of work possible. Correction of deformities is the first procedure necessary and can be brought about by several measures: first, *redressement force* or manipulation under an anaesthetic; second, tenotomies; third, tendon lengthening or shortening; and fourth, osteotomies, all of which must be followed by prolonged fixation of the part involved in an over-corrected position.

Owing to insufficient control of the deformities in the early stage we often find function much more impaired than is necessary because of the paralysis itself. Thus, it is very difficult for a patient to walk if the foot is contracted in marked equinus or the knee in marked flexion. Not only will locomotion be much more satisfactory if the one can be flexed to a right angle and the other completely extended, but if this is done we often find that certain muscles, not entirely incapable of function but stretched by the stronger pull of the opposing muscles beyond the limit of automatic recovery, will rapidly take on function and accomplish much if not all of the work they are called on to do.

In the correction of these deformities, tenotomy plays a very important part. Often it can be done subcutaneously, and this is the procedure of choice in the ankle joint in all young cases. The same method is very satisfactorily employed in the case of the adductor muscles of the hip, but in the case of the flexors of the knee, tenotomy after open incision is to be preferred because of the intimate association of nerve trunks with the muscle tendons. The tendency to repair in the tendon when the sheath is not too severely injured, even if the ends of the tendon are retracted, leaving a gap of several centimeters, is so great that simple tenotomy is one of the most satisfactory of operations in bringing about a tendon lengthening.

When, however, it seems advisable not to take the risk of possible nonunion, the tendon can be lengthened by some simple method of splicing. At the same time that one set of tendons is lengthened, unduly stretched tendons can be shortened either by excision of a section and suturing or by plecting, the later being the preferable measure. Where the deformity has continued so many years that there has been

an abnormal development of the bone and joint, an osteotomy and the removal of a bone wedge is often necessary to bring about complete correction. In all these cases, after the correction and preferably over-correction has been made, the position must be held fixed by some device, preferably a plaster-of-Paris splint, until union is accomplished and the tendency to recurrence is passed.

When deformities are absent or after they have been overcome, further surgical procedure can be undertaken varying according to the extent of muscle involvement. When all or most of the muscles governing a joint are absent this must be made stable either by apparatus or by an operation which will tend to make the joint involved stiff in the corrected position, but when several of the muscles are present, a permanently functioning joint can often be obtained by the substitution of a functioning muscle for one which is useless.

In the first group of cases, especially when dealing with an absolutely flail joint, or with one where the presence of but a single muscle makes the hope of function impossible, the operation of choice has usually been considered that of arthrodesis. This consists in the removal of the cartilage lining the joint, the approximation of the adjoining bones and the promotion of ankylosis between the denuded surfaces, and has been applied with the greatest success to the ankle and knee joints. It is especially valuable in those cases where the life-long use of expensive and frequently breaking apparatus must be avoided. The aim is to obtain a bony union of the parts in the best position for use, but a firm fibrous ankylosis is usually perfectly satisfactory. It should not be done in patients under ten years of age, as under that age the prospect of a firm union is not good. When the procedure is applied to the ankle much care must be taken to avoid interfering with the epiphyseal line, and when much bone is necessarily removed to obtain good approximation it should be taken from the astragalus rather than from the tibia. Fixation should be applied and continued for at least three or four months to insure firm union and, as before stated, the operation should never be undertaken except in hopelessly paralyzed joints. Since, however, this operation is of necessity a mutilating one, there is often much objection to it and various substitutes have been

devised, chief of which is the fixation of the joint by means of artificial ligaments obtained either by suturing above and below the joint of overlying tendons or by the similar use of strands of silk, an operation which has been very successfully carried out in many cases. The use of the tendons avoids the necessity of introducing a foreign body, and the result is a firm but somewhat flexible, instead of the rigid, unyielding joint of arthrodesis.

In those cases in which several muscles governing a joint are still functioning, the absence of the remainder can be compensated for by one of two measures. The first of these is the transplantation of a portion of a healthy nerve trunk into an adjacent paralyzed nerve trunk in a descending direction in the hope that the fibres of the transplanted portion will grow along this trunk and in time supply the paralyzed muscle, the motor impulses being then carried to these muscles through the healthy nerve. This is only possible when the muscles involved are all supplied by one nerve trunk and this nerve trunk lies adjacent to a large, healthy nerve, part of which can be spared without sacrificing its own distribution.

The after-treatment is also very important, electricity, massage, exercises and education being necessary for a long period after the protective dressing is removed. The best results have been obtained when the operation has been done within the first year of the disease. Numerous cases have been reported, a certain percentage giving more or less satisfactory results, but the method is still distinctly in the experimental stage.

Not so the second method, that of the transplanting of the tendons of one or more healthy muscles, which can be spared without sacrificing function, into the tendons or periosteal insertion of paralyzed muscles in order to take up their function. Of late years, due to the excellent work of a number of surgeons, especially Vulpis, of Heidelberg, and Lange, of Munich, (who introduced the use of artificial silk tendons often of considerable length) and owing to much improved technique, the operation has been made extremely satisfactory and offers brilliant results in many otherwise hopeless cases. Taking the place as it does, of a bulky piece of apparatus which would be otherwise necessary to replace or assist the disabled joint, the permanent relief offered without the con-

stant annoyance of breaking apparatus is most important.

In undertaking the treatment, however, several points must be observed with great care. The cases must all be carefully selected, a muscle being used for transplantation only when it is duplicated by another muscle so that its loss will not be an important matter and when its transfer can be made into a location where it will be of definite value. The possibility of extending tendons too short to reach the proper attachment by means of silk threads, which in time become incorporated in a firm, tendinous structure, makes many cases suitable for this treatment, but care should always be taken that the muscle is not too weak for the work assigned and that the pull is maintained in a fairly straight direction without any sharp angles. Previous complete correction of the deformity, if any exists, must always be done. Insertion directly into the periosteum or bone is, according to some of the best authorities, an extremely important feature, while others believe that the attachment into the tendon of the paralyzed muscle is a satisfactory procedure and does not result in so great stretching of this weakened tendon as to destroy function. The attachment should be made with the muscle tense when the part is in over-correction. Complete fixation should be maintained for from six weeks to three months and a support of some sort used to avoid over-strain up to from six to twelve months.

The after-treatment is of extreme importance, and good results cannot be expected in most cases from the operation alone. Not only are massage and passive motion necessary, but the education of the muscle to work in its new surroundings is absolutely essential and usually can be done only by painstaking care. This is a feature which is very prone to be overlooked by the surgeon who is content with seeing his transplanted muscle contract upon removing the stiff dressing and is often tempted to leave the further treatment to the parents who are unable to do it properly. Many of the failures have resulted from this fact. The poor selection of cases, the failure to properly over-correct before the operation, the lack of care in obtaining a straight pull, and the performing of the operation when the patient is too young and before the tendons are large enough to be handled satisfactorily are other

important causes, but when this treatment is carried out under proper conditions, the results are usually excellent and permanent.

There still remain many cases not suitable for operative procedure which can nevertheless be greatly benefited by careful study of their needs and the prescribing of apparatus which will give them the greatest possible assistance in locomotion. But in addition to this apparatus the education of the patient in its use is absolutely necessary, and such cases should be kept under supervision for long periods, so that every change or improvement can be at once noted and properly met. The great improvement in function, which is almost invariably noted even in the most serious cases after such painstaking, prolonged, and careful treatment by massage, muscle education and proper support, together with the progressive modification of all three as the changing condition demands, encourages us to hope for at least some betterment of the condition in even the most hopelessly crippled cases.

922 Farragut Square.

INTERNAL INJURIES OF THE ABDOMEN.*

By S. S. GALE, A. B., M. D., Roanoke, Va.

In discussing this subject before you at this time I do so because I know of no more important class of cases that railway surgeons have to deal with than cases of internal abdominal injury.

I wish to preface my remarks by saying that I was inspired to write this paper on account of having read a paper by Dr. E. B. Claybrook, of Cumberland, Md., which he read before the Eastern Panhandle Medical Society in Martinsburg, West Va., March 12th, and which was published in the *Old Dominion Journal*, June, 1913. It seems to me that this paper is the most valuable contribution that has been given us in the diagnosis of internal injuries, and as it is of such recent publication I feel that possibly a number of the fellows have not read the article and that it will be of mutual benefit to us all to study the symptoms and diagnosis of this class of cases together. I shall quote freely from Dr. Claybrook's paper and wish to give him full credit.

He enumerates five diagnostic symptoms to

*Read before the Association of Surgeons of the Norfolk and Western Railway, at Old Point Comfort, Va., October 2-3, 1913.

which I wish to add two more of my own which I think will be of great aid in helping us to make a diagnosis in these cases.

"It is of the utmost importance that an early diagnosis should be made and that these cases should be operated at the earliest possible moment. When all of the symptoms of internal hemorrhage, shock, rapid, feeble, pulse, with the characteristic facies, have developed with great abdominal distention and absence of liver dullness, with intestinal paresis, and more or less continuous vomiting and all of the characteristic symptoms of peritonitis, it is then too late to benefit such cases by operative interference."

As the doctor states, "These injuries are far more common than many believe, and many die each year without their chance for life because the diagnosis was not made. We should all be ever on the alert in all cases where we have to deal with a contused abdomen, for we never know how slight a contusion may cause disastrous laceration of the contained organs without any external evidence of injury.

"The history is of the utmost importance. Was the patient injured; if so, how? A slight fall on the abdomen, a fall from a tree or even a fence, a kick by a horse, a wheel passing over the body, or caught and squeezed in a place that is too narrow for his body, and yet not so close as to break bones or the skin, any of these are the ones which may give grave injury. After the history as to how he was injured, did he vomit? If so, what and how much, and was it repeated, or did it stop as soon as the stomach was emptied?

"After getting the history, it is up to us to make a diagnosis upon the symptoms that appear early, if we are to save the patient, and not wait for late ones which appear when the patient is moribund."

The doctor further states to his mind there are just five symptoms of importance, in early diagnosis, and we will consider them in the order of their importance. (I shall quote him verbatim.)

"1.—Transmission of the heart and respiratory sounds, so that they are heard all over the abdomen, almost as distinctly as over the chest. This sign can be elicited without any instrument but the ear, and if present, even if no others are, and we have a history leading to the

suspicion of internal injury, laparotomy is indicated, for it means trouble. This symptom was first brought to the attention of the profession by me in a paper read in Baltimore in 1904. I have had many chances to study it since, and it has never played me false, and, besides, has proved just as good a negative symptom in all but one case. As to its constancy, value, cause, and reliability, I am not now prepared to go into details, but I expect to read a paper in Pittsburg dealing with this sign alone, in the near future.

"2.—The quiet abdomen, absence of peristaltic sounds. This is a valuable sign when present, but its absence does not prove anything. The previous administration of morphia will lessen peristaltic sound, but will not do away with it. This sign, too, needs no instrument but the ear to find.

"3.—Tenderness. This is always present to a great or lesser degree, whether or not there is pain. Morphia previously administered lessens this symptom markedly, but does not, as a rule, do away with it. It is usually definitely located, and is over the region occupied by the organ injured.

"4.—Rigidity. This is valuable when present, especially localized rigidity, but its absence means absolutely nothing, as some of the worst cases show a soft flaccid abdominal wall, without any resistance. Again, in moderate contusion of the muscles alone we may find a marked rigidity and tenderness.

"5.—Pain. The least reliable of all, but worth considering with the history and other symptoms. If severe, a good sign; if absent, means nothing especially. It bears no definite relation to the organ involved, and may be referred to a distant part of the abdomen."

To these five symptoms I wish to add two more symptoms that I think are very important, especially if the case comes into your hands several hours, or longer, after the receipt of the injury.

1.—The hemoglobin test. As these cases are usually robust, healthy individuals, if, on making a hemoglobin test, the hemoglobin is found down to eighty-five or less, it is very strong presumptive evidence that the patient is losing blood, which I saw well borne out in one of my cases which I shall report.

2.—The blood pressure. If the patient's

blood pressure is below normal, it is also indicative that there is internal hemorrhage and I believe should be given proper consideration in weighing the symptoms in these cases.

Of course, all of these patients should be catheterized, which will help us to diagnose a ruptured urethra, bladder or kidney. If the catheter almost enters the bladder and then stops, and on its removal, we get a small amount of blood, we suspect a ruptured urethra. If we get a small amount of bloody urine, we suspect a ruptured bladder. If there is a large amount of bloody urine we suspect a ruptured kidney. These cases usually have early primary vomiting once or twice, but seldom more.

The point that Dr. Claybrook makes is: The patient with severe internal injury does not show the profound symptoms that we are led to expect, at the time when diagnosis should be made, if we are to save his life. This is exactly in line with my experience in this class of cases, and I wish to lay special emphasis on it. We should go over all cases in which the history is such as to lead to the slightest suspicion that an internal lesion may exist, most carefully and thoroughly, and we will be surprised at what we will find at times.

Of course, the indication in all these cases is surgical. I believe if we will all bear in mind the symptoms as herein enumerated, that we can make the diagnosis in a large majority of our cases and that the mortality from internal injuries can be largely reduced.

I wish to report the following cases. We made the diagnosis absolutely on the symptoms as enumerated in Dr. Claybrook's paper, and had we not been familiar with these diagnostic signs I firmly believe we would have postponed operating until it would have been too late.

Case 1.—Mr. C. H. D., injured July 22nd, 1913, was putting down a guard rail on a bridge on Tuesday evening, July 22nd, when his foot slipped and he fell about fifty-two feet, striking an x-brace across the lower part of his abdomen before hitting the ground. He was knocked breathless from the fall and he said he was unconscious for over half an hour. There were two or three broad contusions on the right side and lower abdomen. The day after the accident the patient was nauseated and vomited once or twice. He suffered a good deal of pain. A physical examination which was made about forty hours after the receipt

of the injury showed a man with a tense and tender abdomen; with muscular rigidity of the right rectus. There was dullness on percussion of the right flank, with transmission of the heart and respiratory sounds over the upper abdomen and extending to midway between the umbilicus and symphysis. Peristaltic sounds were present over the entire abdomen notwithstanding this man had had several doses of morphine before being brought to the hospital. Tenderness, rigidity and pain were all present. A catheterized specimen from his bladder was clear except for some blood cells, microscopically. He was placed on the operating table at 5:15 P. M., July 24th, about fifty hours after the receipt of injury, and about two and a half hours after he came under our observation. His pulse was 98 and of good volume. The blood pressure was not taken. Hemoglobin test showed 58%. Temperature 100; respiration 20. A right rectus incision extending from the free border of the ribs to Poupart's ligament. Abdominal walls showed external signs of violence; muscles showed evidence of bruising. The parietal peritoneum was ecchymotic and was dissected from the abdominal walls due to a rupture of the right epigastric artery. On opening into the peritoneal cavity there was a gush of blood. The ascending colon, cæcum, and a part of the small intestine showed extensive bruising. A rent of the peritoneum covering the ascending colon was observed, which was peeled back for a distance of three or more inches. This peritoneum was sewed back over the bowel. The bladder showed ecchymotic spots. Otherwise, it was uninjured. Very extensive retro-peritoneal hemorrhage was observed, extending from the right parietal peritoneal cavity into the pelvis behind the bladder upon the anterior parietal peritoneum as high up as the umbilicus. The deep epigastric artery on the right side just below the symphysis was ruptured. All bleeding points were arrested. The abdominal cavity was filled with saline. A large drainage tube was inserted in the lower angle of the wound which was closed with through and through silk-worm gut sutures. He came off of the table with pulse of 132 at 6:55 P. M. At 11:30 he had a temperature of 101; pulse 100; respiration 28. From that time on his progress was uneventful. He left the hospital September 15th, fifty-three days after his admission, cured.

Case 2.—J. H. M. This man was struck by a train. The engine hit him on the left side and precipitated him a distance of ten or fifteen feet. He came under our observation some twenty-four hours after receipt of injury. At that time he showed all the characteristic signs of internal injury with hemorrhage. This was before we had read Dr. Claybrook's paper, and we were not familiar with his diagnostic signs. The hemoglobin test in this case showed 72%. The operation showed a stellate laceration of the spleen. The spleen was removed and the patient recovered. I merely report this case to bring out the hemoglobin percentage.

TREATMENT OF ECTOPIC GESTATION.*

By S. B. MOORE, M. D., Alexandria, Va.

Practically all cases of ectopic pregnancy should be treated surgically; in fact, all cases diagnosed as such in the first 3 months should be operated upon at once.

The first successful operation for ectopic gestation was done 30 years ago by Lawson Tait. The older surgeons claimed ectopic gestation to be a very rare condition, but since our methods of diagnosis have been improved, we find it a very common trouble. No doubt many of us can recall cases in our early practice that died from hemorrhage due to ruptured tubal pregnancy; probably I could have saved many lives by being able to make the proper diagnosis.

Many sudden deaths diagnosed as heart trouble are without doubt due to ruptured tubal pregnancy. For some reason the extravasation from a ruptured fetal sac is attended by shock which is out of all proportion to the amount of blood lost. In some instances the patient suffers not only from the loss of blood but from the extensive wounding of the peritoneum—the so-called peritoneal shock.

It is now accepted that practically all cases are primarily tubal, with a possibility of few true ovarian.

Prognosis of tubal or ectopic gestation is always serious. Occasionally we hear of spontaneous cures; in fact, we sometimes find evidences of it in post-mortem examinations. In a series of cases collected by Martin Orthman and others, out of 278 without operation 187, or little over two-thirds, died; while 507, or 80 per cent, of 636 cases operated upon survived. Mortality

in Kelley's series was 6 to 8 per cent with operation.

Treatment.—Non-surgical measures, such as injections of morphine and other substances, or drawing off liquor amnii, or use of electricity, are contra-indicated and dangerous. Operative measures are the only safe and reliable means to deal with this serious condition. Treatment may conveniently be divided under the following headings:—*First*, treatment prior to rupture or abortion; *Second*, treatment at the time of rupture; *Third*, treatment after rupture or abortion has occurred and the patient has recovered from its immediate effects; *Fourth*, treatment in the advanced months of pregnancy; and *Fifth*, treatment after death of the child in the advanced months of pregnancy.

As to treatment prior to rupture or abortion, the most difficult part is making the diagnosis. The operation is a simple laparotomy, remove the diseased portion, leaving the ovary if healthy.

Under the second head, or at the time of rupture, conditions are most dramatic. You get a hurry call to "come at once; the patient has fainted," or "is dying." You find the patient pale, pulseless, possibly suffering with severe pain in side, though some have no pain at this stage. Some claiming to be comfortable, do not want any one to disturb them. There is generally tenderness over the lower abdomen, and the condition may possibly be mistaken for appendicitis, pyosalpinx, uterine abortion, etc. Get your patient in the hospital at once, and operate without delay. If patient has lost much blood, use salt solution while operation is in progress. In going through the abdominal wall, you will find the peritoneum a dark bluish hue due to free blood in the abdominal cavity. If the hemorrhage has been large, when you open the peritoneum you will have a free flow of blood out of the wound. Rapidly enlarge your wound, pay no attention to the blood; go down in the pelvis, lift up the ruptured tube, clamp off to prevent any further loss of blood, clean out clots, then tie off the tube. Some use hot saline and wash out, claiming the clots will be more readily absorbed, in addition to the benefit to be derived from the salt solution in the circulation.

Close without drainage unless you find other complications that necessitate it.

In the third class of cases,—i. e., after rup-

*Read before the Fairfax County, Va., Medical Society, August, 1913.

ture or abortion has occurred, and the patient has recovered from the immediate effects,—the bleeding is usually from some small vessel, and often the rupture is in the broad ligaments, or it may be a true tubal abortion. You will find under this head many spontaneous cures, due possibly to death of the foetus followed by absorption and disappearance of the products of conception.

If there be gradual improvement in the patient, one may adopt the plan of watchful expectancy. You can be more conservative in this class of case than any other.

In treatment in the advanced months of pregnancy, conditions are more complicated after rupture of the placenta, and the sac forms new and more extensive attachments with large sinuses leading up to them, making the operation after the fifth month the most difficult and dangerous in surgery.

No case of ectopic gestation should be allowed to go on after rupture or abortion. When the patient comes to the surgeon with child from fifth to seventh month it is better to delay operation in the child's interest. Some operators claim it is better to defer operation until the child's death in order that the placental circulation may cease and lessen danger of hemorrhage.

Under the fifth heading after death of the child, the placenta gradually shrinks, clots form in the vessels and sinuses, thus making it less dangerous to operate, but increasing the danger to a certain degree from infection.

As to the advisability of abdominal *versus* the vaginal route, you may go through the vagina in case the product of conception is low down, small and movable, so that it can be readily drawn down back of the uterus into the vagina. In all other cases, use the abdominal route owing to the difficulty in managing adhesions and controlling hemorrhage by the vaginal route.

In my private work and house cases at the Alexandria Hospital, I have operated upon eleven cases within the past two years. Six were correctly diagnosed, two before rupture and four after; two were diagnosed as appendicitis and three as pyosalpinx. All were operated upon within a few hours after entering the hospital, and all recovered and are in good health.

I wish to cite a few cases, some with rather interesting features:

Case 1. Mrs. L. W., married 4 years, no miscarriages. Had symptoms of pregnancy, and some vaginal hemorrhage. Was suddenly attacked with sharp pain in left side of pelvic region. Vaginal examination made under anesthesia revealed a mass closely attached to the uterus on left side; the uterus was enlarged, with the cervix soft. Suspected ectopic gestation (interstitial). Sent patient to hospital, and she complained of sharp pains during the ride. Operated immediately and found the foetus had aborted from the tube into the uterus, evidently without breaking the membranes as it continued to full term. Patient had pain for several days. In massaging the uterus after delivery, you could distinctly feel the enlarged tube.

Case 2. Mrs. F. B., married 2 years, no miscarriages. Patient complained of pain in left side with slight bloody discharge. At first I did not recognize condition, but the patient was kept under observation for few days when I made vaginal examination and found an enlarged tube on left side. Suspected pus tube, but short time after examination patient complained of dizziness, pulse rate increased, there was shortness of breath, and a diagnosis of ruptured tubal pregnancy was made.

Hurried patient to hospital and operated at once. Found tissues bloodless, with the peritoneum black from blood in the abdominal cavity.

Incised the peritoneum, when free blood, which filled the abdominal cavity, gushed up. I immediately reached down and pulled up the bleeding tube, put on two clamps, cleaned out free blood and clots, then washed out with hot salt solution, and closed up without drainage. In the meantime, Dr. Smith, who assisted me, remarked that it was a shame we did not get her earlier as we could have saved her life. Dr. Powell did great work with salt solution during the operation and I really believe he saved her life. Patient made nice recovery.

Case 3. Mrs. H. M. Diagnosed case as appendicitis; had pain in right side, abdomen rigid; considerable nausea, pulse a little rapid but of good character. After calling consultant, who agreed with my diagnosis, and after urging her to go to the hospital at once—to which she finally consented—she was care-

fully prepared for operation. I expected to find a large gangrenous appendix but, to my great amazement, found free blood in the abdominal cavity. I changed my diagnosis at once and pulled up a nice ruptured tube that was bleeding freely; the appendix was a very trifling insignificant little fellow that I did not have the heart to remove. Patient got well, and I collected a nice fee.

Case 4. J. W. M. Patient had severe pain in left side about 4 months before the operation. She was treated at that time by another physician by the expectant plan for a condition resembling pelvic cellulitis, recovering without operation, though occasionally she would have severe pain with considerable tenderness in the pelvic region, this being more on the left side. The clinical diagnosis was pyosalpinx. Operated, assisted by Drs. Powell and Yates, and removed an old tubal pregnancy. Possibly this ruptured during the attack 4 months before.

Case 5. Mrs. C. T., multipara, was operated on for appendicitis six years before. No history of miscarriages, but a period of sterility. Complained of pain in right side; did not mistake this for appendicitis as I had removed the appendix six years before. Vaginal examination revealed a mass, round, well-defined, and closely attached to the uterus. I advised operation and sent patient to Alexandria Hospital. After preparation, operated and found an unruptured tubal pregnancy which was removed unruptured.

Case 6. Mrs. C. This case was diagnosed as pus tube. Operation revealed pus tube on left side, and ectopic gestation on right.

Other cases were not of any special interest.
811 Prince Street.

PRESENT WORK AND NEEDS OF PUBLIC HEALTH SERVICE.*

By HUGH S. CUMMING M. D., Washington, D. C.
Surgeon U. S. Public Health Service.

I thank you most heartily for your courtesy to me and through me to the Public Health Service in again inviting me to present a paper for your consideration. I have never seen any society whose time was more fully occupied in earnest discussion of valuable subjects, and I

have selected a subject of equal importance and more far reaching than malaria, which we discussed last year. Should this paper result in interesting you and securing your support for the Public Health Service to the degree that malaria has interested us since last year (though not as a result of my paper), I shall feel that my visit has been as profitable as it is pleasant—and that is hoping for much.

Every great national governmental organization in this country, as elsewhere, is the product of evolution and the survival of what has been determined by the people who comprise the government as the fittest: and this is pre-eminently true of the Public Health Service of today.

Health organization everywhere has been gradual, and naturally so in this country, whose colonial settlements were widely scattered, especially in our southern sections, peopled by a sturdy folk intent upon conquering and opening new fields, and practically self-governing.

Such legislation as was made was naturally directed against smallpox and similar diseases, and quarantine against plague, yellow fever, and smallpox was begun at an early date by those commercial and maritime communities most exposed to infection from without.

Virginia in 1639 had public health legislation regulating the practice of medicine and registration of vital statistics, and at an early date (Henning's Statutes) required the stating of the ingredients of a prescription upon its container! Massachusetts organized the first State Board of Health in 1797.

In 1788 Virginia provided for the construction of a Marine Hospital at Washington, now Berkeley. Norfolk County, for the care of her sea-faring men. At an early date after its formation the national government enacted many laws to encourage the development of its maritime commerce, and among others it provided for Marine Hospitals in Norfolk, Boston and elsewhere, for the treatment of sick and disabled merchant seamen. Soon after the formation of the government a statute was enacted to authorize the President "to direct the revenue officers and the officers commanding forts and revenue cutters to aid in the execution of the health laws of the country," this having apparently been the outcome of a bill

*Read before the Seaboard Medical Association of Virginia and North Carolina, at New Bern, N. C., December 3-5, 1912.

introduced providing for a national control of maritime quarantine.

From the establishment of these hospitals with their resident surgeons, some of whom, such as the great Waterhouse, of Boston, were famous men, was gradually evolved the Marine Hospital Service, whose medical officers, in addition to their hospital practice with its consequent familiarity with the diseases of sailors and their performance of the duties of treating the Life Saving Service, Revenue Cutter Service, examination of applicants for Pilots' and Masters' licenses and similar duties gradually imposed upon them, took active part in suppressing epidemics of yellow fever and cholera throughout the country. Following the dissolution of the National Board of Health which, created in 1879 by such great men as Cabell of the University of Virginia and Jerome Cochran of Alabama, was practically unworkable, the Marine Hospital Service was given control of quarantine, and the present scientific port health system of this country was started by officers like Carter, Geddings, White and Glennan. The next year the officers were organized into a corps whose head was appointed by the President and its officers commissioned by the President by and with the advice and consent of the Senate. In 1890 was passed the important Act to prevent the introduction of contagious disease from one State to another, and three years later the basic Act granting additional quarantine powers and imposing additional duties upon the Marine Hospital Service; and during the same year Congress provided for the medical examination of all alien immigrants by the Service. During the following years the national control of quarantine has been further extended, provision made for the Government assuming control of maritime and interstate quarantine when the various States so requested or when they failed to maintain the standard set by Federal authority, until now the Service conducts the maritime quarantine inspection at all but three or four cities in this country (these ports, however, being compelled to enforce national laws, are inspected yearly, and reinforced, when necessary, by Service experts), and also conducts the quarantine stations of the Philippine Islands, Hawaii, Porto Rico, and Alaska, as well as having officers detailed as Quarantine

Officers on the Canal Zone. Under these laws the Service has medical officers stationed in such great ports as Hong Kong, Shanghai, Yokohama, Rio de Janeiro, LaGuayra, Havana, and the fruit ports, to report upon sanitary conditions, to inspect and supervise the conduct and sanitary conditions of vessels destined to our ports, and, as at Naples and Yokohama, to inspect alien emigrants destined for our country.

During the fiscal year ended June 30, 1911, there were inspected by the medical officers at the 50 foreign and insular ports 6931 vessels having a personnel of 996,950, and of the vessels 1381 were fumigated, while at the 42 national quarantine stations in this country 420 were fumigated out of 8,229 inspected with 512,343 people on board.

During the same period there were examined by medical officers at immigration stations in this country 1,093,809 aliens, of whom no less than 27,412 were certified as having mental or physical defects, 403 of whom were insane, imbecile, feeble-minded or epileptic. This, of course, does not measure the good of the inspection, for were it not done thousands of undesirables, now deterred, would come to this land of promise. The present writer, for example, rejected about 9,000 out of 27,760 applicants when he was detailed at an Oriental port.

Under these quarantine laws during the last twenty years, as you all know, local and State authorities have been assisted in stamping out epidemics of yellow fever and smallpox in nearly all of our southern States. Service officers in a brilliant campaign eradicated yellow fever from New Orleans, and when that dread disease, bubonic plague, was discovered in our country at San Francisco, Rupert Blue, now Surgeon General of the Service, undertook a campaign of permanent sanitation, preceded and accompanied by rat extermination, which left San Francisco probably the cleanest and healthiest city in the world. Officers of the Service went to Panama with Gorgas to serve as Director of Hospitals and Chief Quarantine Officer of the Canal Zone, and officers of this Service serving not only as quarantine officers but as Director and Assistant Director of Health in the Philippine Islands have there worked wonders in segregating lepers, stamping down smallpox, plague, and cholera, and bring-

ing these possessions in a sanitary condition which is wonderful.

When cholera became epidemic last year in those southern European countries, whence most of our immigrants are coming, our country was spared an epidemic of this disease, with little excitement or interference with commerce by a seven-fold defense:—1. Detention and observation of emigrants at foreign ports by Service Officers for five days before embarkation. 2. Sanitary supervision *en route*. 3. The medical inspection upon arrival, which for the first time included bacteriological examination of bowel contents, thus detecting 27 carriers beside the 24 clinical cases which occurred *en route* or at the ports of arrival. 4. Examination again at immigration stations. 5. The supplying of anticholera serum for diagnostic purposes. 6. The notification of State and local health authorities of the destination of immigrants. 7. The inspection of suspects wherever reported in our country by trained officers detailed for that purpose in different parts of the country, these men on telegraphic orders investigating cases as far west as Kansas and North Dakota.

In like manner the Public Health Service will and has responded to requests for aid in the diagnosis and suppression of yellow fever, plague, typhus fever, and the investigation of other communicable diseases, to an extent which is limited only by the lack of funds and officers.

But while, as has been indicated, the general growth of the Marine Hospital Service had been toward the study of quarantinable diseases and inspection of aliens with its medical work, it had kept abreast of the great sanitary and scientific movements abroad, and coincident with the beginning growth of bacteriological investigations here, a laboratory had been started at the Hospital at New York and in 1891 moved to Washington.

In 1900 a federal plague laboratory, which has done valuable work in the investigation of plague and training of officers, was organized on the Pacific Coast; in 1899 Congress provided for a commission to study leprosy in this country, and in 1905 generous provision was made for the study of leprosy in Hawaii, at Molokai, where Currie and Clegg have finally succeeded in growing the bacillus artificially,

and will, it is hoped, soon find some relief for those unfortunates.

In 1901 the Congress, recognizing the valuable work done in the Service Laboratory, appropriated funds for the present Hygienic Laboratory with its four divisions of bacteriology and pathology, chemistry, zoology, and pharmacology, all for exclusively research work along public health lines.

In 1902 the growth of the Service along public health lines was recognized, the name changed to Public Health and Marine Hospital Service, provisions made to enlarge the scope of the laboratory, as also for annual conferences of State Health Officials with the Surgeon General, and the same year, owing to the importance of vaccines, antitoxins and serums, the number of manufacturers and importers, and the variations in potency and purity, enacted a law requiring the Service to inspect the plants and examine the products of such institutions, so that today every plant engaged in interstate commerce in these articles, before selling its products, has to have a license which is given only after very careful inspection of the plants and examination of samples secured in open market.

Since that time the control of epidemics and quarantine, while continued with increased efficiency, has been merely incidental to the growth of the Service, to recount the public health activities of which during these years would be far beyond the limits of this paper.

Units of potency for tetanus and diphtheria have been determined and adopted by other countries, the phenol coefficient of various commercial disinfectants ascertained, pioneer and valuable work in anaphylaxis done, various investigations of pharmacological subjects made and published, while a great combined field and laboratory work upon hook-worm has been undertaken by Stiles and others. Worthy of mention is the work of Anderson, Cobb, Rucker and McClintic in studying and eradicating Rocky Mountain tick fever, which in the hour of his triumph killed McClintic, the work of Anderson and Goldberger in studying Mexican typhus fever and in proving its identity with Brill's disease and its conveyance by the louse; the work also of these two men upon the contagiousness of measles, which has been far-reaching in its results; the work of Lavinder

upon pellagra deserves attention, and the thorough, exhaustive and life-saving investigation of almost every aspect of typhoid fever from the invention of a sanitary privy and the great intensive study of the disease in Washington and in almost half of the States of the country upon request of local authorities, to the study of rural typhoid and the pollution of Interstate and International Waters, now going on.

Rabies has not only been studied but cases are treated and the State health authorities furnished with material.

The observations of Rosenau, a former officer of the Service, upon the transmission of infantile paralysis by the stomoxys have apparently been confirmed, and valuable work done upon cerebro-spinal meningitis.

In fact, gentlemen, so far-reaching has been the work that the Congress, by an Act approved August 14, 1912, and passed unanimously I think by both Houses after years of hearings before its committees and debate upon various bills, definitely designated this service as the "United States Public Health Service," and directed its additional duties to be "the study and investigation of the diseases of man and conditions influencing the propagation and spread thereof, including sanitation and sewage and the pollution either directly or indirectly of the navigable streams and lakes of the United States. This Service may from time to time issue information in the form of publications for the use of the public."

It is only through these publications, issued as "Bulletins of the Public Health," "Reprints from Public Health Reports" and "Bulletins of the Hygienic Laboratory" with the weekly "Public Health Reports," that the wide scope and great and useful work of the Service within the limits prescribed by our Constitution and Laws, may be judged. These reports include such invaluable publications as "Milk and its Relation to the Public Health," "Sewage Pollution of Interstate and International Waters with Special Reference to the Spread of Typhoid Fever."

There should be laws and appropriations so that such valuable material would be printed and distributed in sufficient numbers to go to every physician and school teacher interested, like the editions of similar bulletins published

by the Agricultural Department. They would repay the country many fold. We must want the people to know that it takes \$1,600 to raise a person to productive age, that when he is killed by preventable disease, either communicable or occupational, we are throwing that much money away in addition to future productive worth, in addition to the suffering, sorrow, and poverty which walk hand in hand with disease and death.

Each of us is unconsciously influenced by his immediate environment; poliomyelitis in Buffalo, tick fever in Montana and plague in Porto Rico do not appall us as if they were in New Bern, and it is not perhaps until one has been in Washington where come appeals for expert assistance and advice from all over this broad land, that one is impressed with the real needs of the Public Health Service and fired with the missionary zeal. It is in this spirit that I come to you, asking your intelligent sympathy and active support in securing for this National Public Health Service of yours and mine the two things it needs to perform its legitimate work under the Constitution of assisting the State and local health authorities and carrying out the work indicated by the laws already enacted by Congress.

These two needs gentlemen are men and money,—money in the shape of sufficient appropriations by the Congress to provide large enough editions of the publications which show the work of the Service, and for enough officers to carry on the vast, almost overwhelming amount of work which is urgently needed.

Men are needed as officers and fellow workers, men who have chosen the great profession of medicine as their life work, not merely as a means of livelihood. To such men the Public Health Service now offers a broader field of usefulness than any other dreamed of by the young physician of yesterday. To him whose ambition is to accumulate a fortune it will not appeal, but to him who with the Wise Man prays for neither poverty nor riches but an assured income which will enable him to devote his energies to his profession it should strongly appeal. Whether it be to work in the Hygienic Laboratory, as all young officers will have an opportunity to do, and later concentrate his energies upon some great problem involving the saving of many lives, such as milk, typhoid

fever, sewage, pellagra, malaria or, following another bent, become a physician and surgeon in the hospitals and quarantine stations, or follow tropical diseases in the Colonies, the Service now offers him the opportunity.

Nothing better illustrates the wide scope of these opportunities than to mention the positions occupied by some officers and former officers. Some are famous surgeons in the large cities; a former Director of the Laboratory is now professor of public medicine at Harvard; another was asked to secure leave to head the great medical school established in Shanghai; others to become national health officers of other countries. Officers are now Commissioner of Health of Chicago, head of the Commission to study insanity in the country, member of the International Commission to study pollution of International Waters, one a member of a Commission to investigate hospitals in New York, and others are studying pellagra, anterior poliomyelitis, typhoid fever and other diseases with and by request of local and State authorities.

The Director and Assistant Director of Health of the Philippine Islands, the chief quarantine officer and the quarantine officers of the Philippine Islands, Porto Rico, the Canal Zone, and Hawaiian Islands are medical officers of this Service, while another officer, by request of the Territorial authorities, is conducting a campaign against stegomyia in Hawaii, thus preparing for the trade of the Canal, a work which our present Surgeon General, Rupert Blue, had started when the mantle of that great office fell upon his surprised but capable shoulders.

It is to such opportunities for broadening themselves and doing good for their country, indeed to mankind, for sanitation and its problems are not confined by political boundaries, that we want recruits.

We do not hope to secure ready-made and developed Kochs or Sedgwicks or Mansons, but, in the language of the cowboy, "we want no trash, but we want 'the makins'!" North Carolina and Virginia furnish the best "makins", and within their borders are young men who, if we can get them and fire them with that *esprit de corps* which has developed such men as Blue and Clifford Perry of Carolina, Carter, Anderson, that brilliant martyr and dear friend

of mine, McClintic, and others of Virginia, will reflect glory upon their States and do good to mankind.

Any physician between 22 and 32 years, who is physically sound, of good moral character, who has the general education required for entrance to and is a graduate of a reputable medical college, and who has had one year in a general hospital or two years practice since graduation, may obtain an invitation to appear before the examining board which will meet every few months in Washington. There are vacancies, and successful candidates are commissioned by the President as Assistant Surgeons, with compensation of \$2,000 a year, furnished quarters, lights and fuel, or cash commutation therefor. In four years, upon passing an examination in which record counts, he will get \$2,400 with quarters, etc., and the following year and every fifth year thereafter for 20 years, an increase of 10 per cent. Twelve years after entrance, upon passing a promotion examination in which record counts, he will be commissioned Surgeon with a base pay of \$3,000, or with the two "fogies," \$3,600, with quarters, etc., according to rank; at the end of fifteen years, \$3,900, and in 20 years, \$4,000. In addition to this the rank of Senior Surgeon, attained by seniority, will pay him \$4,500, with quarters, etc. The Assistant Surgeon Generals are detailed by the Surgeon General from officers above the rank of Assistant Surgeons. The tenure of office is permanent, not being affected by political changes. Officers placed upon waiting orders on account of sickness are given three-fourths the pay of their grade, and officers are allowed thirty days leave of absence every year, which may accumulate.

The actual and necessary travelling expenses of officers travelling upon official business is reimbursed them.

The financial remuneration is perhaps less than many of you gentlemen receive, but it is sure and the professional man can and should concentrate his energies upon his profession.

I again thank you for your courtesy, and bespeak an active hearty support for the Public Health Service—1. By talking of its possibilities to young physicians; 2. By sending for and using its publications or such of them as you need; 3. By active support of your own local and State health authorities in their fields of

usefulness, for it is our duty and wish to cooperate with them and help them. Without them and their opportunities to reach the individual, the national Service can do little.

The local, State, and United States Public Health Services are the three legs of the tripod which upholds the flame which is sending its sanitary life-saving light throughout the country.

Hygienic Laboratory.

NURSING IDEALS.*

By PHILIP S. ROY, M. D., Washington, D. C.

I wish to congratulate you upon your graduation from an alma mater of which you will always be proud. Your degree has come to you after three years of more than ordinary diligence and self-sacrifice. One of the many proofs of this is that a large per cent of those who enter the best training schools do not meet the requirements for graduation.

We learn from "The History of Nursing," by Miss Nutting and Miss Dock, that from the earliest period in history, nursing has been practiced by others than members of the family. This was especially true in India, Egypt, and among the Jews, Greeks and Romans, but according to this history, probably even before historic time, mothers learned to alleviate the suffering of their children and grandmothers made teas very much as they do even today. S. Weir Mitchell has beautifully described the pre-historic care of the sick in a poem to the physician, and it is not less applicable to you:

The hunt is o'er;—the stone-armed spears have won;
Dead on the hillside lies the mastodon.
Unmoved, the warriors their wounded leave;
The world is young and has not learned to grieve.
But one, a gentler sharer of the fray,
Waits in the twilight of the westering day,
Where 'neath his gaze a cave-man, hairy, grim,
Groans out the anguish of his mangled limb.
Caught in the net of thought the watcher kneels,
With tender doubt the tortured member feels,
And, first of men a healing thought to know,
He finds his hand can check the life-blood's flow.

What sense of pleasure won that helping hand
You best can tell, you best can understand,
Who, looking back across your busy years,
Know what your hands have spared of pain and tears.

*Address to the graduating class of the George Washington University Training School for Nurses, June 6, 1913.

An old chronicle of India says the nurse should have knowledge of the manner of preparing drugs, cleverness, devotedness to the patient, and purity of both mind and body. The old India standard for the physician's personal habits was hardly inferior to the standard of today: "The physician should keep his hair and nails short, bathe daily, and wear white garments."

Three heroic characters ever come to our minds in connection with the history of nursing: Vincent de Paul, Fliedner, and Florence Nightingale. I have always regretted that "Saint" should have been attached to so great and good a man as Vincent de Paul. While we know that "Saint" has been given to many beautiful Christian characters, and this is especially true of those who nursed the sick in the early history of the Christian church, yet Napoleon well said "Saints were often those transplanted to heaven after death for deeds which should have caused their incarceration when alive."

Your profession, it has been justly said, ranks with the physician's and the minister's at the bedside. I have never felt that the minister was of much use there. All very sick people are very sorry for their sins and promise themselves to lead better lives. God only can judge the sincerity of their repentances. Please do not understand me to mean that I do not believe in prayer for the sick.

The trained nurse is a necessity. She is often employed through great pecuniary sacrifice but she becomes a great factor in the economy of state by saving the bread winner. So well is this realized now by government, that each year we see an increased number of trained nurses employed by the state for those who cannot afford the expense. The results of your entrance into homes are often marvelous, changing chaos into order, giving the patient and family mental as well as physical rest; you are faith healers without the fraud. Sympathy may sometimes be harmful, but when it can be combined with firmness, as only a good nurse knows how, we have a great healing agent.

Charles Dickens described the drunken nurse of his day, low in morals, mind, education, and social position. One of the first probationers to enter St. Bartholomew's Hospital, in 1877, writes that her first night was spent with a

drunken nurse. She also adds, "Trained nursing as we know it today was unknown; we were merely attendants."

Your splendid training and social position certainly carry great responsibilities. You are not only nurses; you are educators. In your daily work you can rid the popular mind of many fallacies concerning diseases and cures. I do not mean that you should always talk shop or that your illustrations should be drawn from your patients. Many of us are too prone to refer to the individual in talking of medical matters. Some simple statement you may make about a patient can, by being distorted, cause a very unpleasant incident.

In your three years of training you have seen much of the poor, and I have witnessed your deep interest in them and heard their praise of you. This interest should, and, I doubt not, will continue. You will often enter homes which are poorly equipped, where in doing your duty you will have to do many things not strictly pertaining to nursing. In these cases you should make yourself a member of the family and extend a helping hand in any direction. You can do this without the least loss of dignity. These conditions especially occur in the country. I have known the nurse to wash dishes, make the fire, cook, and milk the cow for the patient. You are first women, and whole world turns to your tenderness.

Let me speak again concerning the poor. I believe the manner of recording their entrance into hospitals is wrong. If, after investigation, they are found worthy, pauper and indigent should not be attached to their names. They should be sent to the hospital as guests of the people. I have known many worthy poor decline hospital treatment rather than submit to humiliation. The deserving poor are as much entitled to our care as members of our families.

One of the most important educational fields is scientific feeding. While infant feeding has, in a measure, become scientific, that for the adult is still described as "soft diet" and "full diet." Food therapy is as useful as drug therapy and should be as accurate. "Soft diet" and "full diet" are about as inaccurate as "full dose" would be in prescribing calomel. The nurse can easily establish a system of portions in feeding that will not necessitate weighing, because the food for the sick does not consist of a great variety. I will illustrate such a system.

Four tablespoonfuls of cereal is 135 calories; four tablespoonfuls of rice 250 calories; the usual pat of butter 100 calories; an egg 80 calories; usual slice of bread 80 calories. Meats can easily be measured in like manner. You can teach the public that patent foods are worthless. One of the foods most widely used and which really has more food value than is usually found in such preparations, has only double the food value of milk, and no patient could take over a gill of this food during a day without disturbing the stomach, and this quantity would only represent the value of a glass of milk. Some of the infant foods may at times be useful in infant feeding. Some of you will probably become superintendents of nurses or teachers of dietetics and I wish to impress upon you the importance of thorough training in scientific feeding. I know of nothing of greater importance to the public than a knowledge of economical feeding.

As an illustration of how well or unwisely a dollar may be spent, I will quote from Snyder of the University of Minnesota. He found one family spending \$11.00 per week for food and another \$23.00. Eleven dollars was buying more nutritious food than \$23.00. Until hospitals are furnished sufficient means to care properly for the needy sick, church or secular clubs can be formed for this purpose and no one is better qualified to advise in the matter than the trained nurse. The poor need hospital facilities more than the well-to-do.

A word concerning the history of hospitals. While the Christian religion has a glorious history in its care of the sick in hospitals, we must not think that such care was confined to Christian countries. The Saracens possessed hospitals as beautiful of those of Europe and for centuries surpassed them in medical science and as schools of learning. In Cashmir, at the time of Christ, hospitals existed and were named after royal charitable women who endowed them. In 707, at Cairo, the Arabs founded a hospital for the care of lepers and the blind.

The most magnificent of the Arab hospitals was built at Cairo in 1283 by the Sultan. It was endowed by him "for the great and the lowly, for free and for slaves, for men and for women." Every ward had a spring of water running through it, to keep the air cool.

The Arabs founded many hospitals in Spain—there were fifteen in Cordova. Indeed, the

Saracen race for centuries kept alive medical knowledge.

Miss Nightingale wrote a wonderful book, "Notes on Nursing; What it is and What it is Not." She says there are five essential points in securing the health of houses: pure air, pure water, efficient drainage, cleanliness, light. These essential points are often violated, and she adds: "We expect God to work a miracle when we violate his physical laws, that is, to break his own laws for the express purpose of relieving us of responsibility." Continuing she says: "You should always sit within the patient's view when speaking to him so that he has not painfully to turn his head in order to see you. Everybody involuntarily looks at the person speaking. In touching upon psychotherapy, she continues: "Volumes are now written and spoken upon the effect of the mind upon the body. Much of it is true, but I wish a little more was thought of the effect of the body upon the mind. I think it is a very common error among the well, to think that with a little more self-control the sick might, if they chose, dismiss painful thoughts which aggravate their disease. Almost any sick person, who behaves decently, exercises more self-control every moment of his day than you will ever know until you are sick yourself."

Miss Nightingale makes a statement which even if we can not endorse we should do well to hold as an ideal: "If a patient is cold; if a patient is feverish; if a patient is faint; if he is sick after taking food; if he has a bed-sore; it is generally the fault, not of the disease, but of the nursing."

She adds, "I use the word nursing for want of a better. It has been limited to signify little more than the administration of medicines and the application of poultices. It ought to signify the proper use of fresh air, light, warmth, cleanliness, quiet, and the proper selection and administration of diet, all at the least expense to the vital power of the patient."

I earnestly advise all of you to read "The History of Nursing," by Miss Nutting and Miss Dock. I feel that it will be a great inspiration to you, as well as most interesting.

Our charity, I fear, has not enough of the Golden Rule of Confucius: "What you do not like when done to yourself do not do to others."

All of you will get married, but your field of education will widen. You will each be the

head of a home, whether you are a suffragette or not. I suppose you all know Miss Lavinia Dock is an ardent suffragette.

You have chosen a noble task. I feel certain your ideals are high. You will now enter the homes of sickness and distress. May the Great Healer bless your work, that you may leave behind you sunshine and health!

1200 Massachusetts Avenue, N. W.

Analyses, Selections, Etc.

Prophylaxis of Vulvovaginitis in Little Girls.

Disease approaches us through so many avenues and from so many directions that its prevention requires constant effort and careful, searching observation. It is marvelous what we have done to protect ourselves, yet it is sometimes surprising what we have overlooked. Only prophetically clear vision will see in what is most plainly before us the things there that familiarity has made obscure, and show us the way to better conditions. It takes genius in a man to "see what he is looking at" anyhow, and the trained observers in these days of rapidly advancing medical science may well have genius ascribed to them.

We welcome, therefore, the suggestion made in an essay in this issue that the profession take up and most seriously investigate the condition of the nurses we employ for our infants. According to that writer, specific vulvovaginitis makes horrid ravages among the children and institutes processes that endanger the health of these children so long as they live. It is also shown that treatment thus far is almost futile, and that prevention alone can secure freedom from the disease.

The problem of the negro nurse for children is a live one, and its solution is fraught with inconvenience and danger. For generations she has been caring for the white children and many, many times has earned and held the affection of her charges long after they have passed from her care. But times are different and the present nurse is different. She has diseases that did not prevail a generation ago and specific, contagious vulvovaginitis is one of them. Moreover, she works in a different way and is farther from the supervision of the parents of her charges. This must be so or she

could not do the things she is often guilty of. She has learned to quiet children by touching their genitalia and has been seen to do this on the public streets when a little one has fallen and hurt itself. If she has gonorrhœa, herself, it is practically certain that there are times when her fingers are infected with the coccus and that the disease may be conveyed in this manner. Thus, not only is there physical disease communicated directly to the infant, but the foundation for sexual hyperesthesias is laid and their attendant results of sexual perversions and immorality are fore-ordained.

Prophylaxis has never wanted for vigorous advocates when the way has been shown. The struggles in its behalf are among the greatest honors the medical profession has earned. Here is a new matter for earnest thought and constant labor. Educate the parents in the hygienic care the nurse should give the child and soon the demand will formulate the legislation Dr. Adkins suggests. There is a great—we will even say there is an awful need of clean and sanitary nurses for our children.—(*Editorial. —Journal Record of Medicine*, September, 1913.)

The Bacteria in Eggs.

There can be no doubt that the contents of fresh eggs are, at times, perfectly sterile. It was this fact that enabled Schottelius, in his now classic experiments on life without bacteria, to hatch chickens under sterile conditions and keep them free from micro-organisms in a sterile atmosphere with sterile food and drink. It is equally true that fresh eggs from apparently healthy hens may contain bacteria; and, according to the investigations of Rettger at Yale University, it is now demonstrated that the organism causing the white diarrhea, *Bacillus pullorum*, is transmitted in the egg itself. The questions of how frequently, where and in what manner eggs become containers of bacteria are of serious import in relation to the food industry. On the knowledge of these matters the success and the technic of the preservation of eggs for purposes of food must ultimately rest. If organisms commonly enter the egg during the passage down the oviduct of the fowl, we are face to face with a source of bacterial contamination with which we cannot cope directly. If it be demonstrated, on the other hand, that the bacterial invasion of the shell takes place

at the time of laying or that the penetration by micro-organisms comes subsequently, preventive or palliative measures can be planned more intelligently and effectively.

Several years ago, Dr. Pennington of the U. S. Department of Agriculture, reported an elaborate study of fresh eggs of known history and examined from the bacteriologic point of view. Her findings indicate that organisms are usually to be discovered in both the yolk and white. Only 12 per cent. of all the eggs examined were sterile when tested. There were minor variations in respect to the incidence of season, breed, and fertilized and unfertilized specimens which need not concern us here. What is more significant is the great array of species to which the egg organisms belonged—thirty-six species in the hundred eggs from which the varieties were isolated. Molds and yeasts were not missing.

Kossowics of Vienna has not been content with these findings, which he regards as unjust to the inherent sterility of really fresh hen's eggs. By way of critique, he remarks on the dangers of air contamination incident to the manipulations in investigations of this sort. Such charges would have little weight except for the fact the Austrian bacteriologist himself has found that fresh eggs are, as a rule, free from bacteria. They are, however, very easily invaded by micro-organisms of the most objectionable character within comparatively brief periods. This is true despite the protective shell which encloses the putrescible parts; it is particularly true under the conditions of careless handling and transportation in the trade. Not merely bacteria, but yeasts and molds as well can find their way through the intact shell and membrane of the egg with comparative ease. According to Kossowics old eggs are invaded with greater ease than are fresh ones; and the spilled contents of spoiled eggs furnish a peculiarly effective agent for the penetraton of others contaminated by them.

As a mode of preserving eggs the cold-storage process easily ranks first. If it is true that as a rule freshly laid eggs are sterile, every inducement to avoid sources of bacterial contamination as far as possible is offered to those who wish to conserve them in perfect condition. Cleanliness in handling must be an important feature. When the effective method of preservation by cold temperature cannot be applied,

the use of solutions of lime and especially of sodium silicate or water-glass, deserves primary consideration. These processes, applicable in the home itself, are beginning to be widely advertised and appreciated in this country. —(*Editorial, Jour. Amer. Med. Assoc.*, July 5, 1913.)

Pernicious Vomiting of Pregnancy.

In the opinion of Rufus A. Kingman, Boston, antelexion is the cause of the vast majority of cases, both of the mild and of the severe types of vomiting. Graily Hewitt adds to this the presence of impaction as an essential element in the more severe cases, and the impaction Kingman believes to be due to thickened, contracted conditions of the uterosacral ligaments, always present in extreme degrees of antelexion, and associated at times with similar conditions in other parts of the periuterine cellular tissue. The contraction of the ligaments holds the uterus tightly in the hollow of the sacrum, the cervix being pressed forward and upward by the pelvic floor and by the passage of fecal masses through the rectum, while the fundus is pressed forward and downward by the superimposed abdominal contents. Any attempt to lift or to draw forward the uterus when contraction or even very mild inflammation exists, causes pain, and the normal mobility is found to be limited. With the patient in the knee-chest position—properly placed and with all clothing loosened—and a small Sims speculum inserted, the cervix remains close to the sacrum in the upper portion of the vaginal cavity. If, however, mobility is normal, the uterus drops forward toward the abdominal cavity and the cervix takes its place at the bottom of the vaginal cavity, often too deep to be reached by the examining finger. Retroflexion and other pelvic conditions may also give rise to vomiting, but antelexion is the most serious source of reflex disturbance, and that it is reflex is confirmed by the facts that relief occurs when the uterus rises out of the pelvis, and instantly and certainly upon the assumption of the knee-chest posture with admission of air into the vagina. The author asks what further need is there to seek an explanation for the presence of toxins in the blood, or what excuse is there for holding the toxins guilty of causing the very disturbance which has resulted in their own presence.

In the treatment of pregnancy vomiting, the various causes must be taken into consideration, whether emotional, psychic or neurotic. In the average case of "morning sickness," careful minute instructions for the use of the knee-chest position will usually suffice, without preliminary examination. All clothing about the waist and thorax must be loose; and air must be freely admitted into the vagina, either by separation of the labia, by retraction of the perineum, or by the insertion of a tube. Especially should this posture be assumed just before settling down for the night, the patient then extending herself face downward upon the bed and turning to a comfortable posture for sleep.

If this does not suffice, careful examination, repeated as often as necessary, should be made. Attention should be given to diet, to the bowels and the condition of the nervous system. In case of incarceration or impaction of the uterus, as noted by Graily Hewitt, there is demanded that the treatment be free from danger of inducing abortion, that it be simple enough to be carried out by any practitioner of reasonable ability and experience, and that it suffice to give prompt and decided relief from both nausea and vomiting. In addition to the knee-chest position with removal of all pressure from the waist and lower ribs, Kingman uses a packing made from a lightly felted, curly wool whose elasticity is not destroyed by moisture. The wool is cut into pieces about $1\frac{1}{2} \times 3$ inches in size, and these are tied to twine or thread at six-inch intervals, the first piece being dipped into semi-liquid petrolatum or a bland, antiseptic preparation. With the patient in the knee-chest position and the perineum retracted with a very small Sims' speculum or the finger, the tampons are inserted one by one, gently, yet firmly, until the vagina is reasonably full. The string is left protruding so that the dressing may be removed by the patient when indicated. Only in cases of strong contraction of the ligaments is it necessary to pack tightly so as to exert stronger pressure than that of the air.

If the flexion is chiefly due to pressure from above and the mobility is not greatly restricted by cellular infiltration, pack wholly in front of the cervix. If the posterior ligaments are very tight, it may be well to pack a few times as just described, for immediate relief, and continue by packing very firmly in the posterior

cul-de-sac, to remove the cause of impaction and make the cure permanent. Of course, experience is required in order to get prompt and certain results.

In twenty-five years of constant use of this method, the author has never had any threatening symptoms of abortion. The wool is to be removed at the first suggestion of discomfort, and in any case, after twenty-four to thirty-six hours. A small, gentle, cleansing douche may be safely taken.

In cases in which the patient cannot be regularly seen and treated, the air-ball pessary, introduced deflated and then blown up to a specific size by a definite number of ball compressions, may be employed, as recommended by Dr. Hewitt. The ball should be removed at least once daily, the vagina cleansed, and the ball left out for a day or more according to existing conditions. The knee-chest position, both during the presence and absence of the ball, will greatly help in relief of symptoms and insuring safety.

Kingman gives essential elements of his contention as follows:

1.—Pregnancy is a physiological process in which nausea and vomiting have no useful, necessary, or normal part. They are therefore never physiological, but always pathological and therefore to be prevented, or stopped, in every case, and at once.

2.—Toxemia plays no important part as a cause of pregnancy vomiting though it is doubtless often present as a result of a common cause, and may be a factor in advanced cases.

3.—Neurotic influences greatly increase susceptibility to reflex stimuli, as also the degree of the response, hence all such influences are to be sought out as important factors.

4.—The essential, exciting, determining cause in all serious cases is a reflex disturbance proceeding from the uterus—usually from the cervix and especially from the region of the internal os.

5.—The important conclusion of the whole matter is that an intelligent treatment based upon this conception has resulted in quick, uniform and permanent cure in every case, during a period of twenty years, regardless of the stage or severity of the case, provided the patient was not moribund when first seen.

6.—These results are not exceptional, but can be obtained by anyone who will fit himself to

make an accurate diagnosis of the pelvic condition and to properly carry out the indicated treatment.

7.—If prompt relief from suffering, and security from all danger, can be promised in every case, who will dare in future to counsel destruction of the child?—(*American Medicine*, August, 1913.)

Book Announcements and Reviews

The Semi-Monthly will be glad to receive new publications for acknowledgment in these columns, though it recognizes no obligation to review them all. As space permits, we will aim to review those publications which would seem to require more than passing notice.

The Pituitary Body and Its Disorders. Clinical States Produced by Disorders of the Hypophysis Cerebri. By HARVEY CUSHING, M. D., Associate Professor of Surgery, The Johns Hopkins University; Professor of Surgery (Elect), Harvard University. An Amplification of the Harvey Lecture for December, 1910. 319 Illustrations. Philadelphia and London: J. B. Lippincott Company. Price, \$4.00.

Perhaps it is trite to say that this work marks an epoch in medical history, and yet, it is as true as it is trite. Even the most superficial reader must be struck with the remarkable research work done, and the intelligent manner in which it is laid before him.

To give some idea of the extent to which the study of the hypophysis involves all of the fields of medical endeavor, one cannot do better than quote the author:

"There are few subjects in medicine which promise a wider overlap upon the fields of many special workers than this one of hypophyseal disease. From the frequent direct implication of the optic nerves by the glandular enlargement the ophthalmologist has often been the first to recognize these maladies. The neurologist's interest was early aroused through the pressure disturbances on the part of the encephalon, and will be reawakened in view of the possible relation of epilepsy to glandular insufficiency. The gynecological and genitourinary clinics have long been frequented by the fat amenorrheics and impotent males with hypophyseal disease; and the studies of Erdheim and Stumme will give the scientific obstetrician reason for hypophyseal study for years to come. The experimental and morbid anatomist has been aroused to renewed interest in the ductless glands, par-

ticularly from the standpoint of their interrelational activity. The importance of forcing a knowledge of these states upon the internist, and especially upon the pediatrician, is evident when we realize that except for the adult, acromegalic conditions the manifestations of hypophyseal disease have been almost entirely overlooked; and now that organotherapy promises much for all cases of glandular insufficiency whether adult or infantile it will need no prodding to bring this about. Specialists whose activities are as divergent as are those of the actinographer and the physiologic chemist are now called upon, not only to aid in matters of diagnosis, but it lies in their province to add materially to our further knowledge of the subject. To the general surgeon duties now fall which a few years ago were entirely unanticipated—duties similar to those he has assumed in the case of such thyroid enlargements as are productive of pressure disturbances. And needless to say, to the operating specialist in maladies of the nose and throat the subject is of prime importance, not only because the hypophysis abuts upon his preserves, but for the special reason that there exists a pharyngeal organ which may possibly be a not infrequent seat of disease and which may possess some physiologic properties of importance to the organism."

The publishers have done their part in adding to the value of the work, by the substantial binding, the clear type, the heavy paper and the numerous and beautiful illustrations.

M. W. P.

Medical Men and the Law. A Model Treatise on the Legal Rights, Duties and Liabilities of Physicians and Surgeons. By HUGH EMMETT CULBERTSON of the Ohio and New York Bars; Contributing Editor to the *Lanig*, Ohio, "Encyclopaedic Digest;" "Notes on the American Decisions and Reports," and many other legal publications. Lea & Febiger, Philadelphia and New York. 1913. 8vo. 325 pages. Cloth. Price, \$3.00 net.

The author deals with the main features of modern law pertaining to physicians and surgeons and, as he states, it is not the intention in any way to interfere with the existing text-books of medical jurisprudence, but rather to supplement them. "By careful selection it has been found possible to give all that is of substantial present importance within

a volume of moderate size." It is surprising how many points that are of practical every-day interest come in for discussion, and the author's style is as interesting as the book is instructive. References to substantiate opinions are numerous, and the work, while intended primarily for the medical profession—in whose library it will prove a most valuable adjunct in these modern days of worry,—will no doubt be useful to the legal fraternity as well.

Text-Book on the Practice of Gynecology. For Practitioners and Students. By W. EASTERLY ASHTON, M. D., LL. D., Professor of Gynecology in the Medico-Chirurgical College of Philadelphia. Fifth Edition, Thoroughly Revised. Octavo of 1,100 pages, with 1,050 original line drawings. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$6.50 net; Half Morocco, \$8.00 net.

The popularity of this work is attested by the fact that, since 1905, there have been issued five large editions and five reprints. It seems unnecessary in a notice of this character to enumerate the various additions and alterations that have been made in this latest edition to make it thoroughly modern, but the author has done his work well. The discussion of each subject is apparently exhausted in the effort to give all that is authentic, yet, withal, the views presented are clearly stated and conservative. A valuable feature is the large number of drawings to illustrate instruments used, steps in operations, etc. The book also contains an extensive index.

Editorial.

The Evacuation of Gall Stones.

Of the many fallacies in medicine that are still fondly embraced, probably none is more wide-spread than the popular notion as to the evacuation of gall stones. This seems to be due to two causes: First, gall stone colic often subsides rather quickly as though a mechanical obstruction had been overcome, and the easiest explanation is that an obstructing stone has been expelled. Such, however, is not often the case. The second reason is that any one can take large quantities of fat and oil and recover from the stools lumps that are supposed to be stones. If these lumps are shaken in alcohol or ether,

they dissolve, or if they are heated, they very readily melt, showing they are only the result of the action of alkaline juices in the intestine, or large quantities of fat or oil. In other words, they are lumps of soap. Any one with a healthy digestion can take four ounces of olive oil and recover these lumps—so-called “gall stones”—from the stools the next day.

The relief from pain after a gall stone attack is occasionally but not often due to the passage of real gall stones. More frequently it is because of the subsidence of the inflammation. The pain in gall stone attacks comes directly from inflammation and when inflammation disappears the pain usually ceases whether the stones have been expelled or not. Many gall stones give very little pain and it was formerly thought they caused no symptoms, but the Mayos have found that careful observation will show dyspeptic disturbances with gas formation in practically all cases of gall stones whether there are colicky attacks or not. When the stones do pass, the small stones may go through the common duct, though the large ones ulcerate through the gall-bladder into the bowel or stomach.

When gall stones are removed, it is the usual custom to drain the gall-bladder from one to three weeks. No case has been reported in which food in the stomach or duodenum has come up through the gall-bladder during such drainage. The ampulla of Vater is generally most efficient, as any one who will care to examine it in the cadaver will see, and normally prevents any back flow from the bowel into the ducts. The impossibility of chloroform mixtures, olive oil and such drugs “working up” into the bile ducts from the duodenum is obvious. The administration of these is sometimes followed by relief because they often reduce the inflammation and congestion in the gall-bladder.

It is not likely that cases of pronounced gall stone ever recover perfect health without operation any more than pronounced cases of appendicitis recover without removal of the appendix. That they can be relieved and benefited by medical treatment is unquestionably true, and these patients may go for months or years in apparently perfect health before they are troubled either with colic, or with the irregular indigestion that Dr. Graham, of the Mayo Clinic, has described so graphically. J. S. H.

The Augusta County Medical Association,

Through its Post-Graduate School, has again undertaken to conduct a course of lectures for the winter with the idea of keeping its members in close touch with the latest discoveries and most modern improvements of medicine and surgery. The lectures, which are on a variety of subjects of interest to general practitioners and specialists, were started October 8, and will continue every Wednesday through December 24, at 4 P. M.

The Association will hold its next meeting November 5, in Staunton. Drs. T. M. Parkins and Kenneth Bradford, both of Staunton, are president and secretary, respectively.

Poisons and Habit-Forming Drugs.

Public Health Reports, for October 10 and 17, contain a digest of more than passing interest of laws and regulations relating to the possession, use, sale, and manufacture of poisons and habit-forming drugs enacted during 1912 and 1913, with abstracts of laws passed by the various States. It states that during the past legislative year nearly, if not quite all, of the 40 odd State, Territorial, or insular legislatures which have been in session, have enacted some form of legislation designed directly or indirectly to affect the sale and use of poisons. The need of these laws is apparent when it is known that no fewer than 4,326 cases of acute poisoning were reported in the registration area of the United States for the year 1911.

Attention is called to the need of checking the facility with which dangerous substances may be obtained; to the fact that the purchaser should exercise more care in the use and storing of poisons; and to the harm resulting from newspaper publicity of the specific name of a poison, and its effect in cases of poisoning, such as, for example, the Georgia case which received such great publicity a few months since, that it has seemed to result in an epidemic of mercuric chloride suicides. Greater uniformity in State and Federal legislation relating to drugs is urged throughout.

Federal Medical Licenses.

A bill which was later referred to a committee, has been introduced in the House of Representatives, providing the issuance of

Federal medical licenses which would permit the holder to practice medicine in any State of the Union. There was also a provision to the bill for securing Federal licenses by those holding State licenses.

Government Meat Inspection.

The magnitude of the Government Meat Inspection Service is shown by the following figures covering the past seven years, the period during which the present law has been in effect. In this period more than 377,000,000 animals were inspected at slaughter, of which 1,100,000 carcasses and 4,750,000 parts of carcasses were condemned.

Federal inspection is maintained at 792 slaughtering and packing establishments, which number includes practically every establishment of importance in the country. These establishments are distributed in 227 towns and cities. The force necessary to conduct inspection is comprised of 2,400 veterinary inspectors and assistants.

The quickness and certainty with which the government inspectors stationed in packing houses detect tuberculosis and other diseases in animals and carcasses examined by them at the time of slaughter is an interesting example of developed expertness.

In the large packing establishments the post-mortem inspection work is so divided and systematized that each carcass must pass the scrutiny of several inspectors, each of whom gives his entire attention to examining certain particular parts. Under this system exceedingly slight variations from the normal in organ or tissue are detected instantly, and the government tag is promptly affixed to all the carcasses which show such variation and they are set aside for further inspection by a final inspector.

Dr. John F. Thaxton.

Of Tye River, Va., who, several weeks ago, was operated on for appendicitis, at St. Andrew's Hospital, Lynchburg, has entirely recovered and resumed his practice.

A Better General Hospital Urged for Richmond.

Again the question of having a better-equipped, more up-to-date City Hospital in Richmond is being agitated, though what the ultimate result will be is hard to say as there still seems opposition to it by some who are in power. The sub-committee of the Council in

charge of this matter has submitted a report to the full committee, with the recommendation that it be adopted by the Council, that the city accept the offer of the Medical College of Virginia to lend to the city the Virginia and Old Dominion Hospitals to be used by it free of cost until a new hospital can be built. About \$5,000 would be required to remodel the hospitals for the city's purposes. One of the chief objections to the present City Home is that it combines the hospital and almshouse features which should be separate and distinct. There would be a number of advantages to accrue to both the hospital and the Medical College of Virginia, were the Council to accept these buildings for a General Hospital so easily accessible to the College with its laboratory facilities, etc.

The Southern Medical Association

Will hold its annual meeting at Lexington, Ky., November 18-20, and an interesting program is being arranged. Dr. Frank A. Jones, Memphis, Tenn., is president, and Dr. Seale Harris, Mobile, Ala., secretary. The Association has a large membership composed of doctors from all the Southern States. Dr. Stuart McGuire, of this city, is one of the vice-presidents of the Association.

Dr. Arthur C. Brinkley,

Who is associated with Dr. J. Shelton Horsley, at St. Elizabeth's Hospital, this city, has recovered from his recent illness and is at work again.

An Unusual Prank of Diphtheria.

If report has it true, diphtheria has played a most unusual prank on members of the Georgia Board of Health office force, it being announced that eleven of those working in the offices have contracted diphtheria within the past few days. It is believed that carelessness of physicians in sending diphtheria cultures through the mails is responsible for this small though wholesale epidemic. As a result, the office had to be closed temporarily.

Illinois to Have Colony for Epileptics.

After a campaign of nearly twenty years, a bill has at last been passed by the Illinois General Assembly and signed by the Governor creating a State Colony for the care and treatment of epileptics. An appropriation of \$300,000 was made for the purchase of the ground

and preliminary work. It has been planned that insane epileptics shall not be admitted, that there shall be segregation of the sexes, and also that children shall be separated from adults. The site shall consist of not less than 1,000 acres, and provision will be made for not less than 1,500 inmates.

The Association of Military Surgeons of the U. S.,

At their annual meeting held in Denver, Col., in September, Surg. W. C. Braisted, U. S. N., presiding, elected the following officers:—President, Brig. Gen. Chas. Adams, Chicago; vice-presidents, Lt. Col. J. R. Kean, U. S. A., Surg. Gen. Rupert Blue, U. S. P. H. S., and Med. Inspector Geo. Lang, U. S. N., Philadelphia; secretary, Col. Samuel C. Stanton (re-elected), Chicago, and treasurer, Maj. Herbert Arnold (re-elected), Ardmore, Pa.

Is Eugenic Law to Blame?

We note that in Pittsburgh, in August, 1912, there were issued 1,035 marriage licenses, and now that a more elaborate license has to be filled out, there were only 104 licenses secured in August, 1913. This leads us to wonder if the eugenic law is to blame or whether there was too large a thinning out of those of a marriageable age last year.

The West Virginia State Board of Health

Reported that of the 45 applicants for license to practice medicine in that State, who appeared before the Board last July, there were ten who failed to receive the required average.

Capt. W. H. Moncrief, U. S. A.,

Has been ordered to report in person to the commanding officer, Ft. Myer, Va., for temporary duty.

Association of Surgeons of the Atlantic Coast Line Railroad.

At the ninth annual meeting of this Association, held in Montgomery, Ala., Dr. J. N. Baker, of Montgomery, Ala., was elected president, Drs. A. M. Brailsford, Mullins, S. C., and P. P. Lane, Waycross, Ga., vice-presidents, and Dr. C. P. Aimar, Charleston, S. C., was re-elected secretary-treasurer.

Dengue in Savannah, Ga.

An epidemic of dengue in Savannah, Ga., was reported through Surg. Lavinder, October 8, to

the U. S. Public Health Service, Washington. The number of cases was not given.

Sanitary Moving Picture Shows.

The Chicago Health Department has issued certificates to the motion picture theatres in that city which have efficient ventilation systems, and is urging its citizens to patronize only those possessing these certificates. It is estimated that there are 500,000 frequenters of these shows in that city per day, and this step has been taken in view of the ease with which communicable diseases may be contracted in such crowded quarters improperly ventilated.

Clinical Lectures on Diseases of the Skin.

The Governors of the New York Skin and Cancer Hospital, Second Avenue and 19th Street, New York City, announce that Dr. L. Duncan Bulkley will give a fifteenth series of Clinical Lectures on Diseases of the Skin, in the out-patient hall of the Hospital, on Wednesday afternoons, beginning November 5, 1913. The lectures will be free to the medical profession, on presentation of their professional cards.

The American College of Surgeons

Will hold its first formal meeting for the conferring of fellowship on members, on the evening of November 13, 1913. The principal address will be delivered by Sir Richman Godlee, president of the Royal College of Surgeons of England. Dr. Franklin H. Martin, of Chicago, is general secretary of the American College.

Dental Clinics.

In view of the large number of children found, through the medical inspection of school children, to have defective teeth, the Department of Health of New York City, has secured an appropriation for and established six dental clinics for school children otherwise unable to defray the expense of dental work.

It may be of interest to note, also, that birth certificates have to be issued by the Bureau of Records of the Department* to all children who enter the public schools in that city.

Clinical Congress of Surgeons of North America.

The fourth annual meeting of the Congress to be held in Chicago, November 10-15, promises to bring together one of the most notable gath-

erings of surgeons ever held in America. Dr. Geo. E. Brewer, New York, is president, Dr. Franklin H. Martin, Chicago, general secretary, and Dr. E. Wyllis Andrews, Chicago, chairman of the Committee on Arrangements. Hotel La Salle will be general headquarters. The clinics will represent every branch of surgery. One evening will be given up to the discussion of cancer, a number of the country's foremost surgeons being among the speakers.

Married—

Dr. Robert E. Whitehead, of Kempsville, Princess Anne County, Va., to Miss Peachy Cleveland Sanderlin, of Edgemont, Va., October 11, 1913; and

Dr. George A. Stover, of South Boston, Va., to Mrs. Bettie Lee Richardson, of Milton, N. C., October 29, 1913.

Bequest to the St. Louis Medical Society.

We note through *The Medical Fortnightly* that the St. Louis Medical Society is shortly to be the fortunate recipient of a bequest which, it is estimated, will be in the neighborhood of \$35,000. The donor was Mrs. Francesca Bartscher, who made this bequest as a memorial to her son, Dr. Hugh Bartscher, who died several years ago. It has not yet been definitely decided in what way the Society will make use of the money.

Medical Research Work Receives a Knock.

The Women's Society for the Prevention of Cruelty to Animals, Philadelphia, has caused indictments to be issued on five professors in the Department of Medicine, University of Pennsylvania, on the charge of wantonly and cruelly torturing and maiming dogs. They contend that they are not attacking vivisection but are trying to prevent the ill-treatment of dogs after they are used for experimentation work in medical laboratories, as they claim that the animals do not receive proper after-treatment.

The American Roentgen Ray Society,

At the meeting held in Boston, October 1-4 under the presidency of Dr. Henry K. Hancock, Philadelphia, elected Drs. Sidney Lange, Cincinnati, and W. F. Manges, Philadelphia, president and secretary, respectively, for the 1914 meeting.

Field Hospital at State Fair.

The field hospital at the Virginia State Fair, in the form of a tent on the midway, with two doctors and two nurses in constant attendance, proved a most valuable acquisition. During the week, there were nearly 150 cases treated, most of them being of minor importance.

Cholera in Philippines.

Two cases of cholera were reported in Manila during week ended August 30th. These are the first cases notified in Manila since July, 1911.

New Medical Practice Board in Georgia.

Of the ten doctors appointed by the Governor of Georgia on the new Medical Board, there are five of the regular school (all re-elected), two homeopaths and three eclectics.

The American Association of Obstetricians and Gynecologists,

At its twenty-sixth annual meeting held in Providence, R. I., in September, Dr. Miles F. Porter, of Ft. Wayne, Ind., presiding, selected Buffalo, N. Y., for its 1914 meeting, and elected the following officers: President, Dr. Chas. N. Smith, Toledo, O.; vice-presidents, Drs. H. O. Pantzer, Indianapolis, and J. H. Branham, Baltimore; secretary, Dr. E. Gustav Zinke, Cincinnati, and treasurer, Dr. Herman E. Hayd, Buffalo, the last two re-elected.

More Births Than Deaths in Baltimore.

Reports from the Baltimore Health Department for the month of September show that during the month there were in that city 1,224 births, and 792 deaths, a total of 432 more births than deaths. This is reported as the largest number of births in that city for any months in 1913.

Medical Society of Virginia.

As we go to press, the Medical Society of Virginia is in the midst of its forty-fourth annual session in Lynchburg, Va. In our next issue, we will have a full account of the meeting, and hope to begin the publication of a number of the papers presented which have been promised this journal.

Wanted.—To get in touch with a reliable physician who would like an excellent country location. Address, *P. O. Box 564, Bristol, Va.* (Adv.)

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Original Communications.

THE USEFULNESS OF THE COUNTY SOCIETY—SUGGESTIONS FOR PHYSICIANS AND LAYMEN.*

By SOUTHGATE LEIGH, M. D., Norfolk, Va.

*Fellows of the Medical Society of Virginia,
Ladies and Gentlemen:*

It is customary for the presiding officer of this Association at each annual meeting to deliver an address to the profession and the public. It is with feelings both of pleasure and trepidation that I find myself thus dutifully following in the footsteps of my distinguished predecessors. Pleasure, because no member of our profession can be otherwise than proud of the high honor of presiding over the deliberations of this great body of earnest, hard-working physicians and laborers in the world's progress, one of the greatest honors that may come to any one; trepidation because, not only am I unfitted for such a task, but it is a most difficult matter to discuss subjects of interest both to the medical men and to laymen. However, I shall endeavor to lay before you at least a few thoughts worthy of your serious consideration.

During the past several months I have given considerable time to investigating the status and condition of this, our general State organization, the standing, usefulness and influence of our members in their respective sections; health conditions throughout the State, and the attitude of the public towards the profession.

I found a medical society, unusually large in numbers, holding annual meetings, well attended, useful and interesting. But I also found that there was but little accomplished during the

rest of the year for its members and for the communities. There was a general lack of the benefits to be derived from a strong modern organization. I am speaking frankly, and without criticism of the splendid work of the men who have preceded me. If there is blame to be attached to any one, a good share should be placed on my own shoulders. Our system was good, but it did not go far enough. We had vice-presidents from the various sections, a councilor for each congressional district, with several at large, an efficient secretary and treasurer, and excellent chairmen of important committees. But these men, however good they were, had but little authority and exerted but little influence as representatives of the State Society. The fault was not theirs, but was with the plan of organization or non-organization.

I had the greatest difficulty in obtaining a list of county societies, and after months of correspondence found that but very few were in existence. There were some flourishing associations, doing good in a way, which were composed each of doctors from several counties of the State. These undoubtedly were a help to the profession in a scientific way, but did nothing to strengthen the State organization. They were not a part of the State Society, and had no connection with it whatever; in a way they were to some extent rivals of the State body.

At the annual meeting in Roanoke, in 1909, a plan for the reorganization of the State Society along the lines proposed by the American Medical Association was presented and advocated by a large number of our members. I was one of those who strongly opposed it. My opposition was based on two points in particular: One was that we had as secretary a man who for years gave up the major part of his time to the work of the Society. It was his especial pet. He was the dominating influence in its af-

*Address of president before the Medical Society of Virginia at its forty-fourth annual meeting, at Lynchburg, Va., October 21-24, 1913.

fairs. His untiring devotion, tremendous energy, attention to every detail, and attractive personality made it one of the most influential and important societies on this continent. He was strongly opposed to the plan of re-organization as suggested. Since that time, to the deep sorrow and distress of every medical man in the State of Virginia, our beloved and faithful secretary, of forty years, has been gathered to his fathers. His system and his work we no longer have to guide us. His was a labor of love, and was carried on to the detriment of his own personal interests. We could not and should not expect any one else to do as he did,—practically the entire work of the Society. I am glad to be able to testify to the excellent and most efficient work of our present secretary, but we must not expect him to do it all. Each member of the Society should do his part. But to do it there must be a different system.

My other principal reason for opposing the new plan was that we had practically no local societies in the State. I felt that before reorganizing we should have at least a fair number of county societies to start with.

As I promised at the last meeting of this Association, I have made strenuous efforts to establish a county society in each county of the State. In my correspondence, which has consisted of about 12,000 communications, a large proportion of them personal letters, I have found, I am sorry to tell you, considerable apathy among our members, especially those living in the sections of the State far distant from the usual places of meeting,—a strong argument for varying the place of meeting as much as practicable. This lack of interest is, however, not marked, and can easily and promptly be overcome by organization.

With the willing co-operation of the various officers of this society we have succeeded in establishing quite a number of new county societies, most of which have had enthusiastic meetings. We have also paved the way for an early and successful completion of the county organization scheme, and have, judging by the most encouraging reports received from every direction, done much towards reviving the interest of the profession in the State organization. We have found, on the part of our members in general, considerable misunderstanding as to the organization, objects and usefulness of the county

society. So great was the demand for information along these lines that we have invited Dr. A. R. Craig, secretary of the American Medical Association, to attend this meeting and make these matters plain to us all.

As a result of our observations and correspondence, we are most positive on one point, and that is, that the Medical Society of Virginia needs a change in its plan of organization, at least to the extent of making the county society an integral part of the State organization, and that we *must have* a society in working order in each county of the State. An amendment to our Constitution will be introduced at this meeting, putting that plan into effect. It is my most earnest desire and advice that this amendment be adopted, not only by the required four-fifths vote, but by the unanimous voice of every member present.

This will be the beginning of a new and progressive era in the development of our Society, and will, I believe, result in making it the most powerful and useful State organization in this country.

Through the development of the new plan the State Society's work and influence will be active the year round, and not simply at the annual meetings. When the county society meets it will meet each time as a part of and representing the State organization. When the scheme is fully developed, it will result in bringing every reputable medical man into our membership. For then none can afford to remain outside. A doctor, then, who is not a member of the local and State organizations must have something radically wrong with him, and for his own good he will be most anxious to mend his ways and come into the fold.

The advantages and results of the properly conducted plan of county societies are more far-reaching and good-producing than one can imagine without going into the subject fully.

It brings the profession strongly together, in a compact and powerful organization, which may do untold amounts of good both for its members and the public in general.

One of the best results of the local society plan is that it necessarily brings the physicians of the community closely together. We are all forced to admit that unfortunately in some sections there is more or less bad feeling between doctors, as well as between people who are rivals

in other kinds of business. This should not occur with our profession whose aims are so high and responsibilities so great. The public is to blame for a good deal of it. Doctors and preachers are the special subjects for many an unpleasant discussion. Frequently the friends of one doctor show their loyalty to him by criticising his competitors. This is unwise, and is the cause of much trouble.

Every new doctor coming into a community is, if he gets any practice at all, certain to draw some patients from the doctors already there. It is human nature for us to feel this, and yet we ought not to expect otherwise. Our patients are free agents, and they may do as they please.

No physician has a right to speak ill of a brother physician or his work. It hurts him as much as the other and often more; it hurts the profession as a whole, and, worst of all, it weakens the confidence of the public. We all have a right to choose our friends and to have our likes and dislikes, and it is not necessary for any doctor in a community to be intimate with all of the other doctors. He should, however, treat each one with the respect that his high calling demands. We have our code of ethics which should be followed strictly. If one physician has a grievance against another, he should at once take it up either individually or through his local society. In ninety-nine cases out of a hundred it can be easily explained and settled. If he simply carries it in his mind as a grudge against the other, it causes much worry, unpleasantness and bad feeling. Life is too short for "fusses" and petty jealousies. Let us be broader-minded, and more philosophical, and it will make it easier for us all, and will be most helpful to the profession at large. Of course, we have our "black sheep," but they are few and far between. With strict local organization, they can be readily handled and brought into line.

Proper compensation for the medical man is a subject which only a strong local organization can cope with. The public has never fully appreciated the monetary value of the doctor. In the event of impending litigation, the best available lawyer is engaged, and usually a fee, way out of proportion to the fee of the physician, is arranged, often in advance. I mention the lawyer simply as an example. The same rule holds with expenditures in other lines. Although the

doctor deals directly with health, and with life itself, yet his services are valued most low. The public is not doing the doctor justice, and is not doing itself justice. The physician cannot give the best service without good equipment, and that costs money. He cannot keep up with medical knowledge and advance without considerable and repeated expense; and, of course, he must have the proper support for himself and family. This is a line along which the public needs educating, and it is a difficult thing to do also, because the doctor is only too apt to be accused of being mercenary. The doctor's bill should be the *first* instead of the *last* to be paid, and he should receive living prices. As a matter of self-preservation, our local medical organizations must take up promptly the matter of compensation, fixing the proper fees for the various communities, and arranging among its members to prevent imposition by patients going from one doctor to another to avoid paying bills. Let it be understood, however, most positively that the medical profession stands ready at all times and places to care for the poor and needy.

The general practitioner, especially in the rural districts, is the worst sufferer from small fees. The result has been to make general practice in the country unattractive to the younger medical men. And can we wonder at this when we realize how many of their predecessors, after years of the most laborious and devoted work, have died, leaving their families almost penniless. An examination of their books would show enough in uncollected bills to make a handsome competence. The country doctor does not expect unreasonable results from his labors, but he has a right to demand that he be fairly compensated, that he be given a proper exchange for his wares.

Unless there be an early change for the better in these matters, the country people will be the sufferers, for there will be an increasing difficulty in obtaining medical attention. The old doctors undoubtedly spoiled them. I imagine that years ago this was due largely to the fact that the family physician was treated on such intimate terms, and as one of the family, that he hesitated to insist upon his bills being paid.

Now, I am not suggesting a medical trust. Indeed, the doctor is too poor a business man to enter into such, even if he desired it. But I do feel that the public in general, and espe-

cially in the rural sections, should assume a different attitude towards the doctors' compensation, paying them more promptly, and with fairer prices. And it will be the best investment they could possibly make. The same suggestions would apply also to corporations, which, as a rule, are most short-sighted and unwise in their dealings with the medical profession.

The family physician is fast going out of fashion, and it is most unfortunate. Not many years ago each family had one particular doctor to attend its members. He was a part and parcel of the family, looked up to, respected and revered, and treated to the best the family had, except in compensation. On his side he gave the family the best that was in him; watched each one from the cradle up; studied their peculiarities, and understood their constitutions as no one else could. In sickness he *knew* what would agree, and what disagree—a knowledge which meant much in the outcome of the case. In trouble he was their comforter, in difficulties their adviser. He looked upon them always as his own.

The tendency for some years past has been to go to the other extreme. One doctor is employed for one case of sickness and another in the next. Different members of the same household have different physicians, and sometimes in a case of illness the doctor is pre-emptorily dismissed and a new one employed. This is all wrong. Under such circumstances how can the medical man do his best,—so often is he lacking in important knowledge of the case. Also, how can he take the deep personal interest that is so essential?

Here we have not changed for the better, but rather for the worse. I would like to see the old-time custom again prevail,—a return to the family physician plan. Such a physician should have the full confidence and trust of the entire family, to guide them in preventive medicine, and to give them the best treatment in sickness; to look after each one of them as he would his own. He should be consulted in all matters pertaining to the health of the family, and especially should he be left free to call other medical men to his assistance as needed. The common custom of people consulting specialists of their own initiative is most unwise. All such consultations should be arranged by the family physician, who naturally, from his store of

knowledge concerning the family's history, could be of great aid to the specialist, it matters not what his line of work.

The employing of quacks and other irregulars is due wholly to misunderstanding, and leads so often to serious consequences. It is, to the conscientious medical man, who is giving up his life accumulating and dispensing all known information about sickness and health, disappointing and inconceivable how the sensible man of affairs, the shrewd judge of all that is best in business matters, could value his life and safety so little as to place himself in the hands of so-called doctors, whose only recommendations are their advertisements and their own claims.

Common sense alone ought to tell the business man that if a doctor is competent, he would not be obliged to advertise and to falsify in order to attract patients. And yet, in the cities this most pernicious custom flourishes. An utter stranger comes to the place, puts a flaming advertisement in the papers, and the public (even some intelligent ones) flock to him. The profession does not mind losing the practice that goes to the irregulars, but what it does mind is the fact that the public only too often believes the outrageous misstatements made by these people, who thus poison the minds of the public and lessen their confidence in the medical profession.

Even in these up-to-date times, the public does not understand that the regular physician tries to learn everything that is good for sick people. He is not an allopath, does not confine himself to a peculiar school or method, but uses every known agent and remedy in his work. If the public thoroughly understood this, they would not employ people who claim to cure by any one peculiar method or system.

If our profession continues at its present rate of success in educating the public in the principles and practice of preventive medicine, I believe the time is not far distant when the family physician will be employed by the year to keep its members in good health, as well as to minister to them when sick. I realize that I am treading on doubtful grounds when I advocate the contract system, which so far has caused the profession much trouble and disturbance, but I believe with a full development of our proposed medical organization, the difficulties may be easily overcome. We are gradu-

ally drifting towards some such plan. The unselfish efforts of our profession (without compensation) are so rapidly checking the development of preventive diseases that some way will of necessity have to be devised to provide the medical man with his living. To my mind, a proper contract system, carefully worked out on ethical lines, would be most satisfactory to the physician, and of untold advantage to the public. Consider the tremendous lessening of the death rate and the amount of sickness by community work, as already accomplished in up-to-date sections, and then imagine how much these good results may be augmented by the individual work of the family doctors among their patients.

The education of the public in the various matters of preventive medicine and surgery can be facilitated greatly by organized efforts through the local societies. It is in this work that the absolute unselfishness of the medical profession is shown. In what other profession or business do the members do everything possible to lessen the amount of their business, and hence the extent of their compensation? Doctors all over this country, not only through the official health boards, but also as individuals, are doing their best to keep the people well, and to teach them to avoid the causes of sickness. This wonderful work in preventive medicine is, without doubt, the noblest on earth. So far, it is bringing the profession no reward, except the consciousness of doing good. With a full understanding of it, the public can never accuse the profession of being mercenary. The amount of sickness and the number of deaths is being markedly reduced. Simply, for example, take the city of Norfolk: Ten years ago health conditions in Norfolk were fair, and the death rate was moderate. Since then the death rate has been reduced five in 1,000, which means the saving of at least 400 people a year. With this there has been, of course, a corresponding decrease in sickness. As a result of such decrease, the income of the doctors in the city of Norfolk has been cut down, we will say, as a rough guess at least, \$100,000 a year.

And what is true of Norfolk is also true of the other progressive sections of the country where health matters are being properly looked after.

Small-pox, of course, has been well under

control for many years, its occasional outbreaks being due to the most criminal neglect. It seems strange that there can still exist sections where the people are opposed to vaccination against this horrible disease.

Scarlet fever and diphtheria are rapidly disappearing. It is a shame that they ever occur. As soon as the *intelligent* public is taught the rules of strict isolation and the *ignorant* public is looked after by forcible means, these diseases will practically disappear.

In tuberculosis, the people have already been fairly well instructed. The results have been excellent. Of course, education must be still kept up, especially in regard to watching for early symptoms of the disease. What we need most just now is more extensive arrangements on the part of the State and local governments to care for both the early and the incurable cases.

Dissemination of knowledge in regard to water and milk supply, and especially the danger of the house-fly, is rapidly ridding the country of typhoid fever.

Cancer education is the most serious problem that is now confronting us, and one in which our efforts so far have been unavailing. Neither the profession nor the public has realized its importance. Cancer, next to tuberculosis, is the most fatal scourge of our country. Between 80,000 and 100,000 people die of it yearly in the United States, and the number is increasing out of proportion to the population. The saddest part is, that while it is more easily prevented and more curable than tuberculosis, yet between 90 per cent. and 95 per cent. of its victims die. If taken in time, about the same proportion should get well! Why such a horrible discrepancy? *Ignorance!* Ignorance on the part of the public; ignorance of its nature and early signs; ignorance and prejudice in respect to the methods of prevention and cure.

Local medical organizations can do much towards spreading the necessary knowledge. The individual doctors can warn their patients as to the danger signals, which are often slight and inconspicuous. To those of us doing surgical work, it is heart-rending to see only too often a mother in the prime of life, with a number of small children, condemned to die in a few months of an incurable cancer, which

could, most likely, have been prevented or cured if she had applied to her physician when the first signs of danger appeared.

Cancer of the stomach practically always is preceded by neglected digestive disturbances. Harmless looking "lumps" in various parts of the body are frequently not removed because the patient is afraid of the knife. The same patient will use "quack" treatment during the curable stage of the disease, and when he applies to the doctor for advice, it is too late.

Within the past two years, a good start has been made towards systematic education of the public in regard to cancer. The splendid results achieved in Germany have been most encouraging. The Tri-State Medical Association has done some good work through a special committee, and the American Congress of Surgeons, realizing the urgency of the situation, last fall appointed a committee on cancer among women. Later, at my request, this committee was enlarged to comprise every State in the Union, and was authorized to consider cancer in general. A number of excellent articles in the magazines are the result of its efforts, a splendid opportunity for philanthropic work!

A member of this society, Dr. Driver, of Norfolk, has, within the year, started a fine work in educating the public regarding the prevention and cure of malaria. This is a matter which has been long delayed in this country. Much good will come of the movement. It should save many lives, produce better health conditions in the low sections, and permit the people to become more thrifty and prosperous. (The subject will be fully considered during the course of our meetings.)

The mode of living of our people, especially in the country sections, is a matter which should be given more consideration by the profession. Those of us who have looked at all into the subject are obliged to be fearful for the health and strength of the coming generation.

In old times, the farmer, however modest his belongings, thought first of the health and comfort of his family. He had a garden filled with a variety of vegetables, early and late; fruits in season, an abundance of milk, home-made butter, and fowl. He usually had his own meal, and often flour, and rarely was forced to buy from the stores.

Now the picture is radically changed: his time is given up almost exclusively to his crops, such as cotton, peanuts, tobacco, and the like. He raises but little for his table, besides cabbage, potatoes and pork, with a few chickens; everything else is bought from the store, and is not always of the best. Especially is this true of butter substitutes and cheese.

The usual feeding of small children is being dreadfully neglected. How often do we see, even among people in both country and city who ought to know better, small children of a few months old eating hog meat and cabbage! And the practice is general of letting small children *eat what they please*, when they ought to live chiefly on milk, eggs, cereals, bread and the like. We must look forward with horror to what will be the condition of their stomachs and gall bladders when they grow up.

Our people are dreadfully in need of guidance on these matters of diet for both old and young, and there is no one to advise them but the doctors.

The County Society as an educational force for the profession has a wonderful and but little considered opportunity. There is no telling what may be accomplished.

During the past few years marked advances have taken place in medical education. The number of colleges has been markedly reduced, the standard of education has been elevated and systematized, and, as a result, fewer and better doctors are being turned out to practice. Advance does not stop here. Medical men and surgeons at the large centres are doing much to develop and increase useful knowledge among the profession at large. The habit is being rapidly formed among the profession in general, of making regular visits to the clinics, and of more largely attending medical gatherings. Our journals are becoming more perfected and being more widely read. In short, not only are improvements in medical and surgical practice being rapidly developed the world over, but the knowledge of the advances is being systematically diffused throughout the entire profession.

There is no one way in which we can, as individual physicians, improve ourselves more certainly and more systematically than by meeting together frequently in the small local socie-

ties, where we may exchange views, report cases, ask advice of each other, discuss the journals, and thus broaden our views, and make better doctors of ourselves. The physician who "knows it all" is a dangerous man. The wisest physician is the one who realizes his limitations, and is continually striving after knowledge and betterment.

Advances both in medicine and in surgery are being made so constantly and rapidly that much time and study must be given by the members of the profession in order to keep up-to-date and to produce the best results.

It is absolutely essential for the doctor to absent himself from his practice at regular intervals, and the public should encourage him in so doing, as it is as much to their advantage as to his. He should regularly attend the local meetings, the larger society meetings, and visit the clinics best suited for his line of work.

Our profession has no secrets. Doctors give freely of their knowledge one to the other.

With us, as with other professions, all is advance and improvement.

Thoroughness and accuracy in diagnosis have, of late, been greatly simplified and made practical. In medicine, the serum treatment has made marked and useful advances.

In surgery, operative methods are being constantly simplified, and much attention is being paid to safeguarding and lessening the disagreeable features of surgical operations. Particular attention is being paid to anaesthetics, and especially the development of that safest and least unpleasant of all, nitrous-oxide-oxygen, which is destined to come rapidly into general use.

And so, I leave you these few earnest thoughts. May they be productive of some good. May they do even a little towards bringing about a better understanding between doctor and doctor, and between the profession and the public. And let us with renewed energy and determination push forward the great work of preventing avoidable sickness, lessening human suffering and saving human lives. And let us always remember that in this noble work the best results will be achieved, and the greatest good accomplished by thorough, exact and comprehensive organization. For our State, such organization can only be accomplished through the Medical Society of Virginia, to

whose upbuilding and development we should, each one of us, dedicate his best, continued and enthusiastic efforts.

DIAGNOSIS OF TUBERCULOSIS.*

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Post mortem pathologists find lesions in about one-third of the autopsies performed upon the 30,000,000 of persons dying of non-tuberculous lesions, and in all of the 5,000,000 which die each year of tuberculosis.

Public health officials and officers of various associations and leagues for the prevention and suppression of the Great White Plague, in rhetorical language with growing figures, artistic gruesome pictures, pamphlets, addresses, elaborate and conspicuous painted signs, moving pictures, traveling health exhibits, contribution boxes and other avenues of education would indict about one-half the population of the world of actual phthisis and inflict upon the other half a fear of the disease. They tell us graphically of the ravages of the disease among our dearest friends and neighbors, nearly all children, all milk-giving cows, beef and other cattle, the family horse, the household dog, the fireside cat, affectionate kitten and other pets; and that tubercle bacilli, hungry and vicious, lurk in every crevice, on every curtain, carpet, bed, book, the court Bible, eating and drinking utensils, baby's toys, men's whiskers, women's hair and in the air of rooms, railroad coaches, public halls, streets, highways and everywhere save only the unenclosed roofs and open tents in the Blue Ridge Mountains 'neath the trail of the pine.

These figures are from statisticians. They proceed far in advance of the disease. They serve many useful purposes to be sure, among which may be mentioned the creation of the fresh air habit, the abolition of the public drinking cup and the provision of a satisfactory reason for discontinuance of the pernicious habit of universal kissing. With this, however, there has undoubtedly followed a well defined disease in the minds of susceptible neurotics, phthisiophobia.

Specialists in the treatment of persons af-

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fected by the disease find it in nearly all their sick people, and a large proportion of well ones. Many specialists have an eye single to the detection of tubercle bacilli, living or dead, active or latent, and can detect lesions, past, present or future, with such ease and certainty that the fear of phthisiphobics is frequently converted into certainty that the disease has, does or will exist.

Pseudo-scientific consultants, dignifiedly and delightfully depend for their judgment upon the speechless reports of such "pathognomonic signs" as reactions to tuberculin and such "instruments of precision" as the X-ray and fluoroscope. In this diagnosis consultants derive many of their conclusions from assistants, laboratory specialists, misinterpreted shadows and the reported microscopic vision of a solitary acidfast bacillus. They are often more positive and enthusiastic in their convictions than the microscopists and roentgenologists upon whom they endeavor to place the responsibility of diagnosis.

Careful and conscientious doctors who intelligently observe and painstakingly study and really know their patients pay little attention to the multitude, but give infinitely more to the individuals with whom they come in professional and personal contact. These observers give us few figures, but an abundance of common-sense conclusions. Their deductions keep neither too far behind nor too far ahead, but just a little in advance of the disease, so that they are able to deal intelligently with individual cases.

Despite the great variation of figures from various sources, every one recognizes that the disease is sufficiently frequently seen and constitutes such a large part of the morbidity and mortality of the human race, and that it involves practically every tissue in the human body, as well as those in animals, that surely no one in any branch of medicine or its specialties can shirk the responsibility of its diagnosis. And of all practitioners, surgeons are perhaps least excusable for a lack of diagnostic ability of the disease which, though it may or may not require surgery for its treatment, so frequently demands most stable judgment for the management of the patients and for the conduct of the surgical therapeutics in the individual concerned. The relation of surgery to tubercu-

losis, even when it affects the tissues beyond the scope of the surgeon, is far-reaching in its importance. It can easily be shown that the treatment of surgical pathology by surgical measures is sometimes necessary to place the patient in the state of health capable of resisting tuberculosis or enabling him successfully to cope with the disease when it is already present. On the other hand, there are many patients affected, especially with pulmonary tuberculosis, perhaps latent or in the incipient stage of activity, in whom operations of election should either be entirely avoided, postponed or performed, according to the technique and under circumstances which will least antagonize the patient's general health or the further spread of the disease. The choice of the anaesthetic, the time for the operation, the very room in which the operation is performed, the preliminary preparations, and, above all, the scrupulous attention to every detail of the after-treatment, from the position in bed, the ventilation of the room, the source, quality and quantity of food supply, and the medicinal and specific treatment of tuberculosis, must be a most essential part of the treatment of the patient, while the treatment of surgical pathology of the case is one of accessory or secondary importance.

The tubercle bacillus causes pathology in practically every tissue of the human body and affects people of all ages, social, racial, sexual, religious and vocational classes. The actual diagnosis of the disease in individual cases implies not the detection of tubercle bacilli in the atmosphere or in some crevice of the room or body, but the discovery of the effects of the tubercle bacillus on the tissues, namely, the pathology of tuberculosis.

It requires no special training to recognize the disease in its advanced stages. The patient's family anticipates it on the basis of anxiety and fear; the neighbors recognize it in the advanced stages by the characteristic sputum producing morning cough. Intimate friends and visitors diagnose the disease on the basis of gossip and a belief founded upon sympathy, suspicion and family susceptibility. Finally the undertaker spots his subject upon bodily appearance, his clinical experience having caused him to see many cases before.

No more time, therefore, will be occupied

in the discussion of these cases which are recognizable across a public square. The modern doctor must see disease just a little ahead of its pathology, and in the case of tuberculosis the chief advantage to the patient of its diagnosis must accrue from a recognition and localization of early tubercles before they become extensive or break down and become complicated. In spite of the belief of many enthusiasts, it has not been proven that there is any pathognomonic sign or specific and reliable test for the existence of the disease, and it may truthfully be stated that he who knows tuberculosis in all its phases of diagnosis and differential diagnosis is qualified for the recognition of a large proportion of human pathology.

The royal road to diagnosis, like the pathology of tuberculosis, may be long and tedious and beset with many obstacles. The essential preparation for one who hopes successfully to make a diagnosis in the early stages of the disease implies an exact knowledge of its clinical course, an intimate familiarity with the normal tissues and organs of the body, a minute knowledge of the patient, including his origin, past, present and future, and with all an average supply of what we call "horse sense" or logic. With this equipment the application of certain underlying and elementary principles in eliciting a searching history, making a complete and careful examination, and the discovery of corroborative testimony, when sensibly analyzed, will, in a majority of cases, be successful in recognizing the disease and planning for the successful management of the patient.

As applied to localization of tubercles, there are two groups of signs produced, namely, the constitutional evidence of infection and the local signs of the disease. The constitutional evidences of infection are not in their last analysis essentially different from those produced by many other infections, though there are certain clinical characteristics of tuberculous diseases which we know from substantial clinical observations to be present. The intensity of the symptoms denotes the severity of the infection and the resistance of the tissues, rather than the nature of the disease.

Variations of bodily temperature are present at sometime during the day. This may be shown in the violent acute miliary tuberculosis, or in tuberculous pneumonia, by a tempera-

ture as high as 105 degrees or over. In chronic cases the temperature may not be over 99 or 100 degrees in the evening, though it is less than normal in the morning. The difference between the morning and evening temperature of one or two degrees is just as significant of the presence of the disease as the variation of five or more degrees is significant of its severity.

Progressive and otherwise inexplicable loss of weight in violently acute cases is commensurate with the severity of the temperature variations; and in the chronic cases, in patients otherwise healthy, the loss may be slight, though progressive. The patient's previous weight, the maximum weight, his average previous weight and the actual present weight should be known. It is just as important to determine at regular intervals the body weight as it is to take the temperature.

Coincident and *pari passu* with the loss of weight, there is loss of strength. This, of course, cannot be accurately estimated nor graphically shown, though its detection is just as certain by the doctor who has an intimate knowledge of the patient. With these two symptoms a searching history must be made to detect the cause of the disease.

It cannot be too strongly emphasized that while in the lungs the lesions are found commonly when they cannot be discovered in other parts of the body, and therefore the pulmonary is spoken of as the primary lesion, yet the organisms must gain entrance into the lungs somehow from the outside world. It is too late to enter into a controversy as to whether or not bacilli are inhaled directly into the pulmonary alveoli. To most careful students the point is settled that they do not gain entrance in this way, and our views of inhalation tuberculosis must be changed to conform to the facts in the case which are that the bacilli become lodged from the atmosphere in the upper respiratory tract in and about the nose and throat and gain entrance into the lungs, not by way of the trachea and bronchi, but by way of the lymphatics from the nose, throat and neck and thence through the right heart into the lungs. Experimentally, this statement is satisfactorily proven. These facts are given to us in the history which is so uniformly elicited from patients of recurrent attacks of what they call "colds," which, being interpreted, mean

coryza, tonsillitis, pharyngitis and other infections about the nose and throat. Carious teeth are also a source.

This mode of entrance of the bacilli into the lungs does not necessarily imply that there must be tuberculous infection of the tonsils or of the nose or throat, for it is shown that this structure need not actually become the seat of tubercles. The practical point is that bacilli deposited into these structures from the air, food or things put in the mouth, are retained, and when the patient contracts an acute or sub-acute inflammation from some other cause, the mucous membrane of this structure permits permeation of the bacilli by way of the lymphatic vessels into the nodes of the neck, thence through the thoracic duct, subclavian vein, right heart and lungs. The lymph nodes of the neck may or may not become the seat of tubercles. This does not argue against their transmission to the lungs in this way, but rather for the success or failure of these structures by their reaction against invasion to prevent the entrance of the organism into the lungs. Bacilli, when swallowed, are taken up by the lacteals of the mucous membrane of the bowel, conveyed to the mesenteric lymph nodes, eventually reaching the thoracic duct and right heart, whence they are carried directly to the lungs.

So the history of recurrent "colds" is important as a diagnostic source of pulmonary tuberculosis. Previous diseases, like influenza, measles, especially pneumonia and pleurisy, are exceedingly significant, not only indicating impaired constitutional resistance, but often showing the constitutional result of a local infection about the upper respiratory tract. The history of exposure to tuberculosis, either through intimate contact with an infected mother, father or other member of the family from the moment of birth, or later in life, is important as an etiologic basis for the diagnosis. This point in the history, in so far as heredity is concerned, deals more with the transmission of immunity than with the transmission of the tendency to the disease. Patients of tuberculous families commonly have the disease in chronic form in contrast to those of non-tuberculous heredity, in whom the disease pursues a much more acute course.

There will frequently be elicited evidences of recurrence during the day of chilly sensa-

tions, though they are never of the ague type, and it is commonly overlooked, or no significance attributed to it, by the patient. There will be found upon close analysis at periodic intervals a tendency for the skin to be moist. This may be either very slight or any degree up to the colliquative night sweats of the advanced disease. There is commonly more or less anaemia characterized especially by a reduction of haemoglobin, considerably more than the reduction of red cells, the so-called chlorotic anaemia.

There are certain constitutional diseases which render the patient particularly liable to tuberculous infection and conspicuous among these is diabetes of all forms except the diabetes of obesity. The patients with true diabetes mellitus just about as commonly die of tuberculosis as they do of diabetes. The pulmonary infections, of course, invite and render fertile the field for tubercle bacilli and pneumonia.

Severe attacks of bronchitis, especially if occurring more than once or in any case pursue a long drawn out clinical course, are particularly liable to be followed by tuberculous infection. Unresolved pneumonia, many cases of "grippe" and all cases of pleurisy except those definitely following acute pneumonia or traumatism, represent not causes of tuberculosis, but actual existence of the disease. Individuals of the colored race present less resistance, and consequently the disease pursues a more rapid course. Von Ruck's studies seem to show that this is due to a lack of inherited immunity.

Finally there have been devised and perpetrated certain specific tests for the existence of tuberculosis in any part of the body. These may be appropriately studied with the constitutional signs of the disease since they in no way indicate local lesions. I refer to the tuberculin test. Three separate methods of applying this test have been devised, namely, injection under the skin, inoculation by vaccination on to the skin, and inoculation by contact with the conjunctivae.

The first of these have been discarded as unsafe to be employed in human beings. It is useful for the recognition of the disease in cattle where histories are uncertain and physical signs difficult to elicit, and since the purpose of its recognition in cattle is to kill the animal, it is quite a rational diagnostic test. The tests when

applied to the skin or conjunctivæ are too recent to be discarded by all diagnosticians, but when doctors think of these tests with more common sense and less enthusiasm, they will also be discarded. It was found that in patients who have tuberculosis in any part of the body, there will occur after scratching the skin and inoculating tuberculin, or after inoculating tuberculin on to the conjunctivæ, what they call "reaction," namely, a local redness, slight rise of body temperature, and other constitutional symptoms. Scratching the skin of a normal person without any inoculation of tuberculin is always likely to be followed by redness and sometimes by constitutional signs of reaction. Indeed, many cases of septicaemia have arisen from this cause, and it is a belief among the laymen that a brass pin is liable to be followed by a reaction. However, the interpretation of this reaction is one which depends largely upon personal opinion. No one has ever defined to us in accurate terms exactly how much redness must be present. In short, the whole test upon analysis will be found to be in its very principles lacking in scientific accuracy, and there is too much personal equation in its interpretation to make it of decisive value. The ophthalmic reaction locally is not unlike that following a cinder or an anaesthetizer's finger in the eye, and on many occasions has been the cause of an eye doctor having to take care of the local effects.

As a matter of practical use, it need only be borne in mind that the ones who originated these tests in order to devise them had of necessity to discover the presence or absence of the disease by ordinary clinical methods in order to see whether or not the reaction were truthful. In other words, they take a patient known to have tuberculosis and apply the test and then attempt to tell us that the test tells them that the patient has it. There is a good deal said about this test in literature five years old, though we do not see many people employing it in human beings now. In a few years it will be only of historic interest.

Of equal importance with the recognition of the constitutional effects of the infection is the detection of evidence of pathology in some organ or tissue, namely, the local signs. These are referable to alterations of function and of the anatomic effects of the pathology. At the pres-

ent time we have no accurate means of estimating normal physiology, and it is doubtful if in the near future we shall be able to recognize slight impairment with sufficient certainty to interpret it in terms of pathology. In no organ but the kidney are we able to determine at the present time the amount of impairment of function, and even in this organ variations must be wide and persistent to have any clinical significance. So that we shall have to depend largely upon physical signs of pathologic anatomy for any positive conclusion.

Considering first the so-called "exact methods" of diagnosis of the local pathology of tuberculosis by means of the X-ray, this, like the specific reactions, has been devised upon a basis of the fact that in tissues known to be the seat of tubercles, shadows are shown in the pictures, and since it is employed for the purpose of showing shadows of pathology which are known to exist the X-ray is useful and interesting. But when employed to the exclusion of careful clinical investigation, it is calculated to mislead to disastrous results. We should constantly bear in mind that the X-ray has only one remark to make, namely, a shadow. Whether this shadow be due to a tubercle or to a mole on the skin, a scar, a calcified spot, a button on the shirt, a "spot" on the plate, clinical investigation must say. The X-ray has only eyes, not sense nor sense organs. While it is in some cases important that the expert roentgenologist make a picture and interpret the physical findings, it is really for the clinician to make the diagnosis. It would be a great pity for the average doctor to feel that he had to believe all the extravagant claims made for the X-ray by the writings of enthusiasts on the subject. As a matter of fact, it is more often the pseudo-scientific consultant than the real roentgenologist who is so absolutely certain of the indispensability and last word of the X-ray. Again, let us constantly bear in mind that it is not tuberculosis but a shadow which is shown, and that the reason X-ray men believe that these shadows represent the pathology of tuberculosis is because the clinician has found that the disease exists in the structure which has been pictured. In the beginning of the use of this agent clinicians could discover an area of disease and have the X-ray picture made, and it was found in some cases to show a shadow. Do not let us reverse the state

of affairs and make the picture and then attempt to tell the doctor that he must or must not find tuberculosis. It is difficult to conceive how one can believe that the X-ray will invariably show a beginning, small, soft lesion of tuberculosis, while it fails to locate nearly two per cent. of kidney and ureteral calculi, and it is the exception to find a gall stone. A small area of consolidation certainly does not present anything like the density as these calculi. So that positive findings by the X-ray are always questionable when the clinical evidence is lacking and negative findings in advanced cases are so easily accounted for by improper focus, defective plates or machine, and an inexperienced roentgenologist. At the present time we are justified in saying that the X-ray has considerably more limitations than possibilities, and it would be a dangerous step for clinicians to cease cultivating their habit of getting a proper history and of making the proper physical examination for the diagnosis of tuberculosis.

TUBERCULOUS LESIONS.

To the members of the Society it is scarcely needful to do more than summarize the chief diagnostic methods and signs for the recognition of this, the most common of all diseases. The technique of history taking should be cultivated. The logical and analytical method of studying individual cases can better be learned than told, and finally a complete physical examination of the entire patient, stripped to the hide, should be made. When this is done the whole story must be carefully studied, using common sense methods, and applying the known principles governing the incidence, predelection, etiology, pathogenesis and clinical course of the disease coupled with a real search for those physical signs recognizable by the senses that God gave us, touch, sight, hearing, smell, and common sense.

The sequence of events should be analyzed. Frequently the disease commences with or develops consecutively from some preceding disease or traumatism. Measles, influenza, whooping-cough, sore throat, recurrent attacks of "cold in the head," bronchitis stubborn to treatment, a history of pleurisy, vague abdominal pains which may be attributed to intestinal indigestion, kidney colic, ischiorectal abscess and fistula in ano are exceedingly suggestive. Recurrent diarrhea, intestinal gas, and borborygmus are leaders to

look for in the gastro-intestinal canal as the source of entrance. Morning vomiting may occur early in the course, even of pulmonary disease, on account of the forcible dry cough and later, in advanced pulmonary disease, as a result of the stomach derangement caused by swallowing sputum. Diabetes is very strikingly the cause for the rapid onset and course of tuberculosis. Impaired nutrition, secondary to chronic digestive disease such as appendicitis, invites the disease and antagonizes recovery. Such lesions constitute real indications for surgery as a prophylactic against tuberculosis when a susceptible patient happens to be the victim of chronic appendicitis, pelvic disease or some other surgical pathology.

Great care should be exercised not to label neurasthenics, the victims of visceroptosis and those weakened individuals from overwork and chronic "nagging" lesions as being tuberculous. Malaria, influenza, concealed cancers may cause the progressive loss of weight attendant upon this condition to be misinterpreted as of tubercular origin. Typhoid and meningitis must not be mistaken for acute miliary tuberculosis, etc., etc.

It is well known that victims of tuberculosis are exceedingly loathe to believe it, and even when told by an expert examiner, they frequently exhibit a sort of contempt for the doctor based in reality upon their own optimism. Rapid heart action and normal size or small heart are also exceedingly significant in differential diagnosis in the presence of certain other symptoms of a chronic character which the disease may resemble. The respiratory rate is always accelerated even when the disease manifests itself in some other organ than the lungs and when these are affected the respiratory rate is then out of proportion to the pulse rate.

The local manifestations of tuberculosis:

LYMPHATICS OF THE NECK.

This is the most common primary location of chronic tuberculous infection. Of all the cases of swelling in the neck, tuberculous adenitis constitutes certainly 75 per cent. On a gambler's chance we are safe in making the diagnosis of tuberculous lymphitis in every otherwise unaccountable subacute or chronic swelling in the neck and in children and young adults, the diagnosis is almost positive. The final proof is to

excise the enlarged node and subject it to microscopic examination.

In adults syphilitic tumors and sarcoma must be differentiated, and the former is easy. Sarcomatous tumors never become adherent to the skin nor break down. It is in tuberculous cervical lymphitis that there is a history of so many attacks of sore throat, though only a small per cent. show evidence of tuberculosis of the tonsil, even when these are examined microscopically. These structures escaping disease, the bacilli may pass through them on directly into the lymphatics from the peri-tonsillar recesses.

PULMONARY TUBERCULOSIS.

There is elicited in chronic cases a family history of exposure to the disease in infancy. When contracted from parents the disease is commonly extremely chronic on account of the fact that the patient inherits partial immunity.

Previous personal history generally elicits recurrent attacks of colds, measles, whooping-cough in childhood, perhaps pneumonia, recurrent attacks of pleurisy, perhaps several spells of what they call grippe. Often the disease is attributed to some acute infection, nervous break-down, over work, intestinal indigestion, and in mothers to childbirth and lactation. The history of the present complaint is chronic cough, recent attack of bronchitis, which are with difficulty cured, loss of weight and strength in spite of fair digestion, fatigue upon exertion. Physical examination shows slight impairment of resonance, increased fremitus, prolonged expiration, few but persistent moist rales at one or the other apices. To detect these signs when they are incipient, examination must be made of the patient's chest completely stripped, particular attention being paid to the very upper limit of the lung, front and back. Hasty and careless examinations are misleading. Frequently several examinations may be necessary. After a thorough cleansing of the throat a specimen of the morning sputum is apt to show tubercle bacilli, pus and elastic tissue. The evening temperature is always higher than the morning, the pulse rate accelerated, breathing rate greatly accelerated upon slight exertion and is noticeable when at rest. Scratching tuberculin into the skin of the arm will produce redness, whether the patient has the disease or not, and it is likely in a pulmonary tuberculous case to be followed by the presence of tubercle bacilli in the sputum.

X-ray may or may not reveal a shadow. Regardless of these and the so-called specific reactions, the patient should be re-examined frequently and regularly, the body temperature should be recorded several times a day and weekly estimates of the body weight should be made. Exceptionally coughing and expectoration of blood may be the signs which bring the patient to the doctor, but this almost invariably means that the disease is beyond the incipient stage. An attack of pleurisy almost certifies the diagnosis.

TUBERCULOSIS OF THE INTESTINES.

Tuberculous disease of the bowel, rare in adults, is apt to occur in children, and is generally contracted from milk, toys, bottle nipples and those articles which so instinctively find their way into babies' mouths, especially when teething begins. Many cases of second summer bowel trouble in children doubtless represent tuberculous infection, and if these are stubborn to the treatment of the average family doctor, tuberculosis should be suspected. It must be borne in mind that the disease is by no means always fatal; in fact, ultimate recovery is almost the rule, with a subsequent development of tuberculosis in the lungs or some other part of the body. Physical examination shows the ordinary signs of stubborn intestinal disturbance. When occurring in adults and older children, severe and acute intestinal obstruction is the complaint with which the patient is brought to the doctor. Barring intussusception, tuberculosis of the lower end of the ileum is the most common cause of intestinal obstruction in children.

JOINT TUBERCULOSIS.

Since the name of rheumatism has been changed to metastatic arthritis, tuberculous joints are being recognized in their early stages, and cripples are being prevented.

The source of tuberculous disease of the joints, like that previously designated rheumatic joint, is in most cases in the throat. Rheumatism confined to a single joint has always been a delusion, and, since we are willing to admit this, early cases of joint tuberculosis are discovered. The first sign is impaired function, and when the lower extremities are involved, this is shown by a morning limp and indisposition to play. The soreness, however,

tends to disappear as the child walks about, and later, when it becomes so striking as to direct the mother's attention to it, she brings it to the doctor, nearly always with a history of mild traumatism. Examination will invariably show muscular rigidity. This may be slight, but an examination of the child, stripped, and of the opposite joint for comparison, will enable rigidity to be detected. All joints, except those of the spine, are held in flexion. This is commonly attributed to the fact that the position of flexion permits more swelling to occur and less pain. The real cause is due to the fact that the flexor muscles, except in the spine, are stronger than the extensors, and when all the muscles are held in reflex contraction, flexion must result. Later muscular atrophy and swelling appear, and when the hip is involved the characteristic thigh flexion, pelvis tilting and lumbar lordosis will represent muscular rigidity.

TUBERCULOUS DISEASE OF THE KIDNEY.

This commonly develops in adults, and may occur even in old age. It may be secondary to a pulmonary or gastro-intestinal origin, and until recent years has been so difficult to diagnose that the average clinical history when the case came to operation was seven years duration of symptoms.

The earliest symptoms are referable to pain in the bladder and frequency of urination. This later becomes urgent and drives the patient to a doctor. There is too much urine in the twenty-four hours, light color, low gravity, and after centrifugation will show a few pus cells, and perhaps microscopic blood, though this is not essential. There is later a development of vague pains in the back representing a mild type of ureteral colic. At this stage there is abundant pyuria and extreme bladder irritation. After excluding diabetes, cystoscopy is urgently called for. This will nearly always be found to be painful, bladder toleration is impaired so that it does not hold a normal quantity of water, the ureteral orifice shows the characteristic oedematous appearance with erosions and ulcers. Ureteral catheterization will show in early stages that the disease is generally unilateral, and that the pus is almost entirely from one kidney, generally the right. The phthalein test shows an impairment of function of the affected kidney as compared

with the other by a diminished output of phthalein. In these cases the phthalein should be injected into the veins so that the ureteral catheters do not have to remain in but about fifteen minutes. Tubercle bacilli may be found in the urine after centrifugation, but the more reliable the microscopist, the less likely is he to say that there are tubercle bacilli solely from their staining reaction. The most dependable pathologist will inoculate the urine into a guinea pig before he says the urine does contain tubercle bacilli.

At this point it is important to bear in mind that even though the bacilli are found in the urine, it does not positively diagnose kidney tuberculosis, for it is well established that many individuals infected with tuberculosis of the lung and with miliary tuberculosis will show tubercle bacilli in the urine from both kidneys representing an eliminative effort on the part of these organs when they are not diseased. The impairment of function is shown by the kidney test of both kidneys, which is the most reliable test for tuberculosis of the kidney.

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THE PROPHYLAXIS OF TUBERCULOSIS.*

By ALLEN W. FREEMAN, M. D., Richmond, Va.,
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To-day, thirty-one years after the discovery of the specific cause of tuberculosis, the disease still ranks in the bills of mortality as one of the two great scourges of the human race. The high hopes which were built on the early results of Koch's discovery have not yet been realized, and the ultimate goal, the eradication of consumption from the human family, is still in the distant future.

These facts, discouraging as they are to the superficial observer, hold for the real student of tuberculosis nothing of discouragement and much of certainty that the ancient enemy of man will ultimately be conquered. There has been no sudden, cheaply-won victory over tuberculosis; no one measure has sufficed to turn the tide and end the fight. But, on the contrary, in a thousand ways and by manifold measures the fight has been pressed. Inch by inch the territory, dearly won, has been occupied, and inch by inch the enemy has fallen

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back. From that historic day, March 24th, 1882, when Koch announced his discovery to this good hour, each year has witnessed progress in the fight on tuberculosis—each year the forces in the battle have been strengthened, made more permanent and more efficient; each year the tendency of the death rate from consumption has been downward, never sharply, sometimes even going back for a brief period, but always downward. It is as certain as any human thing that tuberculosis will some day be conquered, that the age-old scourge will finally be abated. The tide of battle is slowly, but inevitably and irresistibly, turning against the foe, and complete victory will come in the fulness of time.

The one fact which stands out most prominently as a result of the first thirty years' work against consumption is that consumption cannot be regarded as a disease of the lungs, but must be considered a disease of society. The individual with consumption is the most important single link in the mesh which envelopes us, but he is connected by unbreakable bonds with every economic, biologic, social and material fact in our complex civilization. If we would wage war on consumption, we must take into account the whole environment of man—the house he lives in, the food he eats, the water he drinks, the air he breathes, the clothes he wears, the task at which he labors, his pleasures, recreations, exercise, his hours of sleep, and, in view of present-day developments, even the ancestors from which he springs.

A complete programme for the eradication of tuberculosis, therefore, would of necessity require a complete reorganization of society. It would assure to every man good housing, abundant and proper food, pure water, pure air, adequate clothing properly adapted to the climate and season, work suited to his physical constitution for proper hours and under healthful conditions, proper and adequate recreations, pleasure and exercise, and the prevention of procreation by the physically unfit.

Manifestly, of course, such a reorganization must wait on the slow process of social evolution, but evidences abundant are at hand to show that this evolution is taking place, and will ultimately bring about the conditions necessary to the realization of our dream.

True as are these facts regarding the influ-

ence of great social forces on the tuberculosis death rate, it does not behoove us as physicians and sanitarians to sit supinely by and wait for these forces to solve the problem of prevention. There is no social force so powerful and no social movement so slow that active and intelligent human endeavor will not augment and hasten the results of its action. In the war on tuberculosis we have two great facts upon which we can predicate with absolute certainty—the fact that the infected animal, human or bovine, is the only source from which the infectious agent can proceed, and the further fact that whatever the predisposition or resistance of the individual to tubercular infection, the infectious agent must enter his body before infection can develop.

Theoretically, therefore, it is possible to eradicate tuberculosis by the destruction of the infectious material at its source. Practically much has already been accomplished by this means, and it is with this phase of the subject that we are principally concerned.

To destroy all tubercle bacilli at their point of origin, therefore, is the task of the physician and the sanitarian. This is manifestly a large contract, and one which, in itself, requires the operation of many forces and the co-operation of many agencies. It requires primarily the accurate and complete registration of all cases of tuberculosis. Without this registration of the location of cases of the disease, any attempt at education or prevention is doomed to failure. With this registration the effectiveness of preventive measures is limited only by the funds available for the work.

The registration of cases of consumption is dependent absolutely upon the practicing physician. He is the first, and frequently the only, person aware of the facts. Without his aid, therefore, the sanitarian is powerless. There is no more solemn duty laid upon physicians than that of the proper diagnosis and the prompt reporting of cases of tuberculosis.

The early diagnosis of cases of tuberculosis is not easy. The changes in the early stages are usually slight, obscure and deep-seated. The minute changes in breath sounds, the fine rales, the slight dullness on percussion, are inaudible to any but the finely-trained ear, and yet what procedure undertaken by the practitioner is more important to his patient than

the prompt recognition of a beginning tuberculosis? When it is recognized, and the patient frankly advised of his condition, a few months' treatment at a sanatorium, or even at home, will frequently result in a permanent cure. Overlooked, or dismissed, as a "deep cold or a bronchitis," a few months may see an active lesion, already past healing, or, what is even worse for the family, the development of an open, chronic fibroid tuberculosis, which, remaining unrecognized, results in a permanent reservoir of infection, which takes its toll frequently of the entire household.

Not every practitioner can recognize with precision an early case of tuberculosis, but every man who wears the mantle of Aesculapius should recognize the plain signs of danger, and, if he cannot himself make the diagnosis, get some one who can.

The man who ignores the early symptoms, who scoffs at the patient's fears, who, out of mistaken consideration for the patient's feeling, fails to tell him the truth, or who, as some have done, holds on to the patient, dallying with palliatives until hope is gone, can well expect his sin to rise up and smite him.

The crux of the fight against infection is to be found at the point where the patient, noting his symptoms, first consults his physician. Upon the word of that physician hangs the fate, not of that patient alone, but of every member of his family, every one with whom he works, and countless others with whom he is thrown into contact. If the early case is properly diagnosed and properly handled, the patient may recover; but, whether he recover or not, he can at least try to protect others, most of all his loved ones. If the case be not diagnosed, not only the patient himself, but those he loves best, those closest to him, must pay the penalty.

No amount of effort by others who seek the cure of the patient and the prevention of infection can be of any avail if the physician himself fail in his duty. With the active intelligent help of the physician, much can be accomplished. Without it, little or nothing can be done.

Important as is the work of the physician at this critical point in the life of the patient, it must not be thought that the physician alone must bear the burden. His work is fundamental and absolutely essential, and it makes

possible and necessary the work which must be done by society as a whole. Be the physician ever so skilful and diligent, he will find that only a small percentage of those upon whom he makes a diagnosis of a beginning tuberculosis are able to undergo, unaided, the long and expensive regimen necessary for a cure. For these cases, society, or, as we say, the State, must provide dispensaries, day camps, sanatoria and other means for the cure of incipient cases in sufficient numbers to care for all. Be the physician ever so anxious to teach his patients prevention, he will find many of them, by reason of ignorance, negligence, unfavorable surroundings, poverty or other causes, totally unable to carry preventive measures into effect. For these the State must provide isolation hospitals, county hospitals for advanced cases, visiting nurses, free disinfectants and supplies, and the other means necessary for the care of these cases.

For the control of infection of bovine origin, governmental agencies for dairy inspection, tuberculin testing, meat inspection and cattle quarantine must be available.

For the protection of the young, we must have medical inspection of school children, open air schools, school nurses and the like; for the workers, factory inspection and regulation. All these measures are well defined, and, in part at least, in operation in many places.

To prevent the dissemination of tuberculosis, therefore, we, as physicians, must make our diagnosis at the earliest moment which the most advanced of modern methods renders possible. We must frankly and fully acquaint our patient with the means necessary for cure and for prevention. We must teach him the dangers of using a common drinking cup, of promiscuous spitting, of kissing, and of coughing or sneezing into the free air. We must promptly acquaint the proper authority with the facts. At this point the further care of the case devolves upon organized society, which must protect itself if it will. The further care of the case, the provision of sanatoria, hospitals and the like is distinctly a public duty.

Physicians and health officials alike must co-operate with all possible agencies to promote the education of the public in regard to the disease and to bring to the attention of the average citizen the necessity for the establish-

ment of the necessary agencies for the proper care of the disease.

The machinery necessary for the realization of our aim is manifestly, even as hastily outlined, vast and complicated. It cannot be assembled in a day, or a year. It is being assembled and put into operation, at this time, throughout the civilized world at a rate far more rapid than even the most sanguine of prophets would have dared predict a decade ago. Private and public agencies with a zeal and singleness of purpose unparalleled in the history of sanitation are united for the fight.

The physician, therefore, the fundamental and essential factor in the fight against tuberculosis, if he would justify the knowledge which is his, if he would merit the confidence reposed in him by his people, must perform his part in the great fight with eagerness, with diligence and with intelligence. Ours is the opportunity, the responsibility and the privilege. When the scourge is finally abated, and the White Death stalks no more abroad in the land, ours will be the joy, greater than any other human joy, of knowing that we have helped to lessen the weight of human woe and to increase the sum of human happiness.

THE PRIMARY PHYSIOLOGICAL PURPOSE OF VENTILATION TO FACILITATE THE MAINTENANCE OF THE CONSTANT TEMPERATURE OF THE BODY.*

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The study of the subject of ventilation during the past few years has resulted in drawing a sharply marked line between two different but not mutually exclusive explanations of the mode of action of the air of an inhabited room.

The first of these explanations regards the effects of inadequate ventilation as an intoxication of one kind or another, i. e., a harmful effect upon the organism of some material added to the atmosphere of a room from the bodies of those inhabiting it. It is immaterial, for purposes of classification, whether this material

comes from the lungs, mouth, or nasal cavity, or from the skin; or whether the poisoning is of the kind shown in ordinary pharmacological actions like those of strychnine or digitalis, or whether it involves an anaphylactic reaction. The essence of the theory is that we are dealing with the poisonous action of some foreign constituent of the air on the human body.

According to the other explanation, the air of a badly ventilated room reproduces the atmospheric conditions of a warm, calm day of high humidity, and the effect of poor ventilation is primarily and largely due to the combination of high temperature, high humidity, and deficient movement of the air about the bodies of those in the room. That these physical conditions of the atmosphere are harmful no one will deny, nor can any one doubt that the badly ventilated room does produce effects which closely resemble those of a sultry day. It is, however, as we shall see, still a fair question whether the physiological effects of bad ventilation and of a sultry atmosphere are essentially identical.

What, then, are the salient features of experiments bearing upon these two explanations? It does not fall within the scope of this paper to give a summary of the literature; but it will assist us in getting our bearings to describe briefly the most significant points. In the first place it is fair to say that all efforts have failed to demonstrate in the air of a badly ventilated room a foreign constituent *which exerts a poisonous action upon being taken into the lungs with the inspired air*. Carbon dioxide must be definitely acquitted of any such action. As to other constituents, it may be said that although the odor of the air of a crowded room is sufficient evidence of the presence of foreign matter, the experiments supposed to show that this foreign matter, organic or inorganic, *when rebreathed* is poisonous have signally failed of confirmation when repeated under properly controlled conditions. In this connection attention should be called to the fact that harmful results obtained by the subcutaneous injection of material obtained in one way or another from a vitiated atmosphere do not prove that this air is capable of poisoning the body when it is rebreathed; nor is it an ultra-refinement of logic to say that the only acceptable proof that the bad effects of poor ventilation are due to the poisonous action of

*Presented at the International Congress on School Hygiene, Buffalo, N. Y., August 25-30, 1913. In this paper we assume that the initial atmosphere of the inhabited room consists of pure air of normal humidity, and deal with the physiological action of this initial air when changed by the presence of human beings in the room. Such conditions as the lowering of the relative humidity by heating cold air are supposed to be remedied before the air is supplied to the room.

foreign constituents is to reproduce these effects by *rebreathing the foreign material* in concentrations in which they occur in the room, and with other unfavorable concomitant atmospheric conditions of such rooms excluded. It is not too much to say that no such proof has yet been given.

These considerations apply to the very striking experiments of Rosenau which show that, when the air of a confined space inhabited by one animal is cooled so as to condense certain substances out of it, subcutaneous injection of this condensed material sensitizes another animal so that a second injection of blood serum of the first animal produces an anaphylactic reaction. These experiments are very important, for at present they constitute the only evidence in our possession of the existence of poisonous material in the air of an inhabited room, but attention must be called to the fact that the anaphylactic reaction has not been produced in a sensitized animal by rebreathing the vitiated air. Until this is done we are not justified in accepting this as the solution of the problem before us. We take this position at the same time that we fully recognize the suggestiveness of the work and express the hope that future experiments along this line will contribute materially to the solution of the physiological problem of ventilation.

The role of these physical conditions which we sum up under the term "sultry" atmosphere in producing the effects of poor ventilation is indicated by numerous observations and experiments. I have already cited in another paper the experience of a friend of mine in ventilating a crowded lecture room. He found that no complaints of bad ventilation came if he kept the temperature of the room at 68° by forcing in cold air, but had such complaints if the temperature rose much above 70°, although it often occurred that the actual amount of out-door air supplied in the latter case was greater than in the former; and it is significant that these complaints were not usually of the temperature of the room but of its ventilation. It would be a fair reply to this to say that it is only when the room temperature rises above 70° that perspiration begins to be secreted by the sweat glands and that the "crowd poison" may be some material volatilized from the perspiration. Here the cabinet experiments add to our exact knowledge.

When one or more persons are enclosed in a comparatively small air-tight cabinet and thus exposed to the vitiated air which gradually accumulates therein, there is experienced sooner or later and often in very intense form the effects of inadequate ventilation. But these effects can be lessened or delayed, by any one of three means: (1) by absorbing the excess of water vapor; (2) by the use of an electric fan; or (3) by preventing the rise of temperature of the air of the cabinet. A combination of any two or of all three of these procedures is more effective than is anyone taken alone. Flugge and his pupils have, moreover, found that if, by the use of a nose or mouth piece provided with suitable valves, the subject within the cabinet breathes the pure air from outside the same results are obtained as when he breathes the air of the cabinet. In this form of experiment the subject is not breathing the "crowd poison," although the surface of his body is exposed to the sultry atmosphere of the cabinet. On the other hand, if the subject of experiment remains outside the cabinet but breathes (through the nose or mouth mask) the air of the cabinet vitiated by the presence of a second person, no bad effects are felt. While it is fair to urge that these experiments are lacking in any objective test and that the subjects of the experiments may have mistaken their feelings of discomfort for the effects of bad ventilation, yet the fact remains that *they record no ill effects whatever when the physical atmospheric conditions to which the skin is exposed are kept ideal, even though they are breathing into their lungs a highly vitiated air.* If bad ventilation acts solely or chiefly by the poisonous action of a foreign agent in the atmosphere, why were no ill effects experienced when the subjects of these experiments were exposed to this hypothetical "poison?" I see no answer to this except that conscious or unconscious leaning toward a certain theory made the subjects incapable of correct observation. I can only say that on the basis of my personal experience with certain cabinet experiments I am inclined to give little weight to this explanation of the results.

It will assist toward the practical solution of our problem if we consider certain objections which have been raised against the theory we are now considering. We are peculiarly liable to

regard the problem of ventilation as a simple problem, involving only a single factor, or at most a group of cognate factors; while as a matter of fact it may be a problem involving several factors of very diverse character. Hence an objection to a certain solution, although merely an indication that the problem has been only partially solved, may be mistaken for a conclusive argument against the solution.

The first objection I shall consider is that many persons find the effects of a sultry day qualitatively different from those of bad ventilation. These subjective differences, however, may be partially if not largely due to the well-known individual variations in the sensitiveness to odors; for if the odor of "polluted air" produces unfavorable effects, it becomes a real factor in the physiological as well as the practical problem of ventilation. It makes no difference whether the effect is entirely "psychic," for a psychic effect is as real a thing as a toxic effect; and it would be the height of absurdity to say that we should not provide for the person who suffers from these psychic effects of the odor of the air of an inadequately ventilated room. We will all admit, then, that the air must either be renewed, or purified in the process of recirculation.

But to admit the reality of these effects is by no means to say that the physical conditions of the atmosphere as above outlined are not of primary importance in the problem of ventilation. The writer of this paper is most unfavorably affected by the odor of the air of a badly ventilated room whenever he is conscious of it; indeed, the effect in his case can properly be described as a very real physical depression; and yet he has been for an hour in a closed cabinet, the air of which had an overpowering odor to the attendant upon opening the door, without any discomfort whatever. He was unconscious of the odor and it did not influence him. Yet in this same series of experiments, unless the temperature was kept down to 70° and excessive humidity prevented, marked discomfort was invariably the result; and this discomfort was essentially the same as that experienced in a poorly ventilated room or on a warm, muggy day in summer.

A second objection is that out of doors a stagnant, humid atmosphere does not become particularly uncomfortable at temperatures of

73°-75° F., whereas the badly ventilated room of this temperature is distinctly oppressive. But there is usually one great difference between the two cases. In the crowded room there is rarely any considerable movement of air about the bodies of those in the room; on the other hand it is distinctly the exception to have no breeze whatever on a sultry day out of doors; and even in the house we usually get some movement of air by opening windows and doors. Now it is precisely the formation of an "aerial blanket" about the skin which is one of the chief, if indeed it is not the chief source of trouble in the crowded room. This aerial blanket acts, of course, by interfering with the loss of heat from the body, by diminishing both convection and evaporation of perspiration; and I doubt whether any one sitting still out of doors on a perfectly calm, muggy day of 73° to 75° F. temperature would fail to note at least the partial correspondence between his discomfort and that which he experiences in a crowded room. It must not be forgotten that it requires only a slight movement of air to get rid of the aerial blanket; indeed, it requires less than would ordinarily be dignified with the name "breeze." This is generally present on the sultry day, especially out of doors; it is usually absent in the crowded room.

I think that in stating this atmospheric aspect of ventilation this factor of air movement has been neglected in our attention to the factors of temperature and humidity. It is not any one, nor any two of these alone which must be watched. It is all three, and this because all three have the common result of raising the temperature of the skin, thereby introducing into the body the conditions which lead to discomfort, lassitude, headaches, etc.

A third objection which has been urged against the theory is that the vapor chamber of a Turkish bath prevents the combination of lack of air movement, high humidity, and high temperature; and yet, while exposed to this atmosphere, we do not experience the depressing effects of bad ventilation; on the contrary, the vapor bath is stimulating. This objection is certainly not well taken. A temperature of 120° F. or more produces very different physiological effects from those produced by a temperature of 75°-100° F. It is well known that hot water stimulates both the nerves of heat and

those of pain and that in the stimulus from very hot water that of pain preponderates; and the same thing is true of hot moist air. Possibly, too, the elevation of body temperature may also contribute to the stimulating result of the Turkish bath. That the physiological effect of high temperatures (e. g. 120° F.) differs qualitatively, and not simply quantitatively from that of lower (e. g. 90° F.) is also shown by the fact that a lukewarm bath generally lowers arterial blood pressure while a hot bath generally raises it. Probably the explanation of the effect of the higher temperature in both cases is the introduction of a new physiological complex through the afferent channel of the nerves of pain. It should also be remembered that, as shown by Head and Rivers, there are two groups of afferent nerves included under the "heat nerves;" the epicritic fibres, whose end organs respond to any elevation of the temperature of the skin, and the protopathic fibers, which respond only to temperatures of 37° C. and higher. The specific reflex connections of these two groups of fibers has not as yet been investigated; but it is quite possible this also plays some rôle in the different effect of moderate and strong heat stimulation. At any rate, enough has been said to show that the objection in question is not at present logically valid.

Summing up the main points of the foregoing discussion, it would seem fair to say that there is at present no conclusive proof of the presence of atoxic agent in the air of a crowded room, but that the possibility of this is not excluded. The effect of inadequate ventilation is probably a complex matter in which several factors contribute to the result. We know and must reckon with some of these factors, while probably others are as yet unknown. Two at least seem to be established; namely, the influence upon the organism of conscious sensations of smell, and the unfavorable circulatory and other adjustments forced upon the body in order to maintain its normal temperature under the atmospheric conditions of humidity, high temperature, and stillness. It is, moreover, probable that the influence of these several factors varies with different individuals, according to their sensitiveness to disagreeable odors, the thickness of the subcutaneous layer of fat, or the atmospheric conditions in question. More-

over, it is undoubtedly modified by a psychic factor; for the man or woman who firmly believes in the existence of "crowd poison" and who consciously or unconsciously identifies this crowd poison with the odoriferous foreign matter will suffer ill effects as soon as he becomes conscious of the odor, even though the physical conditions of the atmosphere may be ideal; on the other hand, the man who is not worried by the odor of the air or the man who is unconscious of it may notice no ill effects in the same room. The influence of inadequate ventilation no doubt also differs according to what one is trying to do when exposed to it. It may be negligible in the case of one doing a routine, mechanical task, but very marked in another whose work requires close attention and accurate thinking.

If the writer seems to appear in the rôle of a partisan of the view that the problem of ventilation is *primarily* a problem of the mechanism of temperature regulation of the body, this is not because he would belittle other possible factors, far less close the door to future investigation; but rather because he believes that everything indicates that this factor is of prime importance, that it is invariably present in a poorly ventilated room, that it inevitably affects unfavorably every inhabitant of such rooms, and that it must be cared for in practice, no matter what else we may try to accomplish. Any practical efforts at ventilation which neglect it are sure to fail, and those which provide for it are sure to be at least measurably successful. In other words, it is a real advance in the practical hygiene of our subject to recognize that the primary problem of ventilation is not the removal of poisonous material which would otherwise be breathed into the lungs, but the maintenance of the physical conditions of that portion of the atmosphere in immediate contact with the surface of the body in such form as will place the minimum burden upon the mechanism of temperature regulation.

In the above discussion we have not touched upon the very important question of the physiological action of these unfavorable atmospheric conditions, for it is not possible to treat them within the limits of this paper. Doubtless this physiological action is complex, consisting partly in undesirable changes in the distribution of blood whereby certain organs are deprived of

their normal supply in order to rush all the blood possible to the skin; partially to the conscious discomfort of an over-heated and moist skin; and partially to some as yet poorly understood effect upon the oxygen-carrying function of the blood. Especially suggestive are the observations of Barcroft and his co-workers on the effect of moist heat upon the dissociation curve of blood. (*Jour. of Physiology*, 1913, XLV, p. xlvii.)

In conclusion, let us consider some practical application of the theory that the physiological problem of ventilation is primarily a matter of the mechanism of temperature regulation in the body.

1. When the temperature of the atmosphere about the surface of the body is kept about 68°-70° F., the problem of ventilation is largely solved. "Foul air," i. e., air having a distinctly disagreeable odor, must of course be removed; but at this temperature the unpleasant odors seem to be less intense, probably because of the smaller secretion and evaporation of the perspiration.

We may call this the critical room temperature, for it is the dividing line between these temperatures at which the body becomes chilly and those at which it must take active measures to get rid of the heat necessarily produced in its life processes. The correction of too low a room temperature is the problem of heating; the correction of the conditions above this critical temperature is the primary problem of ventilation. So long as the room temperature is kept at the critical point, humidity and air movement are negligible factors. Renewal of the air is necessary, but the less draft produced in accomplishing this the better. This statement, however, holds true only for this critical temperature.

2. If it is not possible to keep the temperature of the air immediately about the body at 68°-70° F., the first recourse must be to those measures which favor the prompt evaporation of the perspiration. To be strictly accurate, it is not the temperature of the air immediately about the skin, but the temperature (and perhaps the water content) of the skin which determines the comfort or discomfort of the subject. Air at 85° F., if fairly dry and in motion, may through the effective evaporation of the perspiration keep the skin at the same temperature

as comparatively still air at 70° F. In other words, the two cases present identical physiological conditions although the physiological condition results from very different physical conditions of the air immediately about the body. Consequently, in practical ventilation there are two rules to follow at room temperatures above 70° F. The first is to keep down the humidity of the air as much as possible; the second and more important is to keep the air about the body in motion; if in doing this it is renewed, so much the better. The first requisite on hot days is a breeze; and the most important practical problem in the ventilation of a crowded room is to secure this breeze, *so as to maintain the temperature of the skin at the optimum point*, i. e., the point which it has in a comparatively dry atmosphere of 68°-70° F. when the subject is at rest. Sometimes this is best secured in one way, sometimes in another. Thus, if cold air can be admitted from outside it is better to open windows wide or in other ways to admit this air. If, on the other hand, the outside air is very hot, it is better to admit it only sparingly and depend upon electric fans to produce the essential movement of air.

To put the same thing in another way, on a hot (e. g., 90° F.) day a room may be better ventilated when its temperature is kept down by opening the windows only enough to secure moderate renewal of the air and keeping the cooler air within in movement by the use of fans—even though the renewal of the air may be very imperfect—than when the air is thoroughly renewed by sending in large quantities of hot and perhaps humid air from outside. In this and all similar cases, the first thing to make sure of in meeting the problem of ventilation is not the renewal of the air breathed but the maintenance of the temperature of the skin as nearly as possible at what we have called the optimum point. At 68° F. no great amount of movement of air is needed; indeed, it is not desirable; at 80° F. it is necessary; and for precisely the same purpose in the two cases,—in order to maintain the proper skin temperature.

Finally, to avoid misunderstanding, it must be distinctly understood that we only assert that the regulation of these atmospheric conditions which come into relation with the mechanism of temperature regulation in the body are of first importance; we do not assert that it alone is

important. We simply insist on this as something which must not be neglected, indeed must be first attended to in practical ventilation without in the least denying that other factors may and do need attention.

Correspondence.

The Friedmann Cure Pronounced a Fake.

CATAWBA SANATORIUM, VA., Oct. 28, 1913.

To the Editor:—Recently I received through the mail advertising matter from the Friedmann Institute mailed from New York City. In this was included the report by the Congressional Committee appointed to investigate the Friedmann treatment before Dr. Friedmann's recent visit to this country. That contained nothing new. There was also what purported to be a reprint of an article written by Dr. Schleich, of Berlin, strongly endorsing the Friedmann remedy. I am unable to give you the initials of Dr. Schleich as I forwarded this report to Dr. Simmons, Secretary of the A. M. A., and inquired who Dr. Schleich was. In response to my letter, Dr. Simmons wrote that he knew nothing whatever of Dr. Schleich, but would endeavor to find out something about him and would let me know later.

Shortly after receiving the above literature I received a letter from a former patient saying that she had been advised that by reporting at Woodstock she could receive the Friedmann treatment. Just what this treatment was to cost she was not told. I replied to her inquiry as follows: "I am indeed glad to hear from you, but sorry to learn that the Friedmann treatment is being exploited in Virginia. I think it has been sufficiently proven that Dr. Friedmann is a fake and that his remedy has neither been proven harmless nor beneficial. I would urge you strongly not to have anything to do with it for I have been told by men who have had opportunity to observe patients treated by Dr. Friedmann's vaccine that the results were in some cases calamitous. I should not think of taking it myself under any circumstances until it has been definitely proven harmless at least, and this has not been done as yet."

The enclosed clipping, which I trust you may see fit to print, will tell of the experience of a

victim of the Friedmann sharks, and I judge this letter was sent fairly broadcast throughout the State.

My object in publishing this matter is that I feel that there is no longer any hope whatever that Dr. Friedmann's so-called remedy is either harmless or beneficial, and I feel that it is due the physicians of the State that they should know that all men doing tuberculosis work have given up all hope from Friedmann's vaccine, or whatever it is.

Dr. Friedmann's visit to this country so plainly bore the ear marks of pure commercialism and Dr. Friedmann proved himself so entirely unreliable that his work was denounced by the United States Public Health Service, and his treatment has been forbidden under penalty of law by the Board of Health of New York City. An attempt to establish a Friedmann Institute in New York City was prevented through due legal process by the Board of Health of the city, and those engaged in this undertaking were compelled to go elsewhere. As New York City was denied them, they have opened a hospital at Saranac Lake.

At the meeting of the National Association for the Study and Prevention of Tuberculosis in Washington last May, I had the opportunity of talking with a good many men in the North doing tuberculosis work, who had had the opportunity of seeing Friedmann's work in New York City, Providence and Montreal. It was the opinion of all that Dr. Friedmann was, without doubt, a faker and that his remedy was not only not proven harmless but that there was absolutely no proof that it was in the least beneficial. Dr. Friedmann's methods of recording results in cases was in no wise a fair one, inasmuch as he reported patients as "much improved, cough and expectoration markedly diminished" while the records showed no change whatever in temperature and pulse, and an increase in the amount of cough and expectoration, the latter being weighed each twenty-four hours. Upon this being called to Dr. Friedmann's attention, his hands would go up in holy horror and he would exclaim in a dramatic voice that he was not getting a square deal at the hands of the American profession. This is simply an illustration of the many detrimental things I learned in regard to Dr. Friedmann from the men alluded to above.

I think it is due the people of the State suffering from tuberculosis that they should be warned through their physicians in regard to this remedy, especially as there is no reason to expect any beneficial result, and much reason to expect a marked shrinkage in the pocket book should this treatment be taken. The National Association for the Study and Prevention of Tuberculosis went on record at its meeting in May, warning all people against Dr. Friedmann, and advising that they continue to use the methods now in vogue for combating tuberculosis, as the latter have been proven of marked value, and Dr. Friedmann's so called remedy of very doubtful value, and by no means harmless.

I trust you may see fit to publish this communication, and also that it may serve as a timely warning to the physicians of the State.

JOHN J. LLOYD, JR., M. D.

For want of space, we are unable to give in full the clipping sent by Dr. Lloyd. It reported the case, from the *Fredericksburg Journal*, of a resident of this State who had been unable to work for over a year, and who several months previously had received treatment from Dr. Friedmann at a demonstration at the George Washington Hospital, Washington. September 24, he received a communication from Mr. M. Eisner, head of the Friedmann Institute, New York City, asking for a statement of his condition, to which he replied at once. Two days later, he received a second letter from Mr. Eisner directing him to report to Dr. J. J. Meyer, Woodstock, Va., who would examine him and give him a second treatment, if necessary, for which no charge would be made, and stating that a Mr. S. Elkan, of Strasburg, Va., would make arrangements for a demonstration at that place.

Complying with the instructions, the patient, accompanied by his brother, went to Woodstock, where they had little difficulty in locating the two men. There they were informed by Mr. Elkan that the treatment would cost \$100. Upon presentation of Mr. Eisner's letter, however, he reduced his price for the treatment to \$25. Refusing to pay the money on account of the letter received from New York, he was asked to sign papers which upon examination proved to be drafts for the amount. Being still unwilling

to pay the amount demanded, the patient returned to his home without having received the treatment and minus \$30 for the trip. The matter was reported to the postal authorities to expose the questionable actions of Dr. Friedmann's alleged assistants and to also save others a similar inconvenience.

Editorial.

The Medical Society of Virginia

Held its forty-fourth annual meeting in the auditorium of the Virginian Hotel, Lynchburg, October 21-24, 1913, with probably the largest attendance it has had in many years outside of the Richmond sessions, three hundred and forty-three members enrolling their names. The President, Dr. Southgate Leigh, made an excellent presiding officer, and lost no time in carrying out a lengthy program.

The meeting was opened with prayer by Rev. Claudius F. Smith, after which Mr. Fred. Harper made a graceful speech of welcome. This was responded to on behalf of the Society by Dr. J. T. Graham, of Wytheville. Dr. Leigh then delivered the Annual Address of the President, which appears in full in this issue of the *Semi-Monthly*. Following this Address came the reports of various committees and officers. The Executive Council, through its Secretary, Dr. A. L. Gray, stated there was no meeting of this body since the last annual convention in Norfolk. A similar report was presented by the Judiciary Committee, Dr. Charles R. Grandy, Chairman, no matters of importance having been referred to it during the year. The Secretary, Dr. Paulus A. Irving, stated in his report that seventeen members had died since the last meeting, ten had resigned, thirty-seven were delinquent in the payment of dues, and he was unable to locate twelve others, their letters being returned by the postmaster. However, as more than balancing the number lost, the Chairman of the Membership Committee, Dr. W. D. Turner, reported one hundred and forty applicants for membership, all of whom were elected. Much of the success in securing so large a number of new members was credited to the active co-operation of the President, who was thanked in a resolution by the Society. The Legislative

Committee, Dr. Geo. A. Stover, Chairman, had nothing especial to add to the report of last year, as there had been no session of the State Legislature during the period intervening since the preceding meeting; it was stated, however, that the Committee was sanguine of success this winter. Report of the Treasurer, Dr. Mark W. Peyser, showed the financial condition of the Society to be in a satisfactory state. The Necrological Committee, Dr. J. W. Ayler, Chairman, as well as the Delegates to the American Medical Association, through Dr. W. E. Anderson, likewise made report.

The reading of regular papers on the program was then begun, several being called for the first night. Papers on the *Diagnostic Methods*, and *Prophylaxis of Tuberculosis*, which were read as a part of the Symposium for General Discussion, appear in this issue, the three papers respectively on *Dietetic, Medical*, and *Surgical Treatment of Tuberculosis* having to be deferred for publication until our next issue for want of space. In this connection, we may say that the majority of other papers read at this meeting have been promised the *Semi-Monthly*, and will appear in succeeding issues.

Important changes were made in the Constitution and By-Laws, and it remains to be seen how well these alterations will work out without ultimately jeopardizing the life of the Society.

Pursuant to the recommendation of the President, the matter of organizing the Society on the basis of component county societies, on a modified A. M. A. plan, was presented to the Council. Dr. A. R. Craig, secretary of the A. M. A., was present as an invited guest, and addressed the Society on this subject. The following changes in the Constitution, presented by the Council, were adopted by the Society:—

“Article IV.—*Component Societies*.—The Society shall co-ordinate the activity of its component county societies. The component county societies shall be those county medical societies which shall hold charters from the Executive Council.

“These component societies shall receive into their membership only white physicians who are qualified to practice medicine in the State of Virginia, and who do not support or practice or claim to practice sectarian medicine.

“Article V.—*Membership*.—Section 1. The

members of this Society shall be the members in good standing of the component county medical societies; provided, that no member of this Society, at the time of the adoption of this section, shall be debarred from membership by not joining a component society, though all members are urged to do so.

“Section 4. The resident honorary members shall enjoy the same privileges and be subject to the same conditions as active members * * *.”

Certain important changes in the By-Laws read:

“Article V.—*Funds*.—Section 1. Funds shall be raised by the *per capita* assessment on each component society. The amount of the annual assessment shall be \$2.”

The following—Section 5—was added to Article VII.: “Each Councilor shall be organizer, peace-maker and censor for his district. He shall visit each county in his district at least once a year for the purpose of organizing component societies where none exist, for inquiring into the condition of the profession and for improving and increasing the zeal of the county societies and their members.”

Section 4, Article IX., is changed to read as follows: “In case a county society refuses membership to any applicant, he shall have the right of an appeal to the membership committee of this Society, which shall investigate the case and report its findings and recommendations, and the evidence taken, to the Executive Council.”

A Committee on Component Medical Societies was appointed, consisting of three members, with Dr. Southgate Leigh as chairman. This committee was empowered to draft rules and regulations to govern the organization of the component societies, such rules and regulations to be submitted to the Council or to a committee of three thereof, delegated by the Council to approve, reject or change the plans offered, and to act in lieu of the Council as a whole. The same committee was empowered to draft and issue to such societies as it may approve the official charter of the State Society after such charter shall have been officially signed by the President and Secretary of the Medical Society of Virginia; this committee to act only in the interim of the meetings of the full Council.”

Among other matters of interest, the Legisla-

tive Committee was voted a sum not to exceed \$150, and the chairman was empowered to appoint such auxiliary committeemen as he might deem necessary. It was directed that on January 1, 1914, all delinquents at that time be dropped. The Society passed a resolution offered by Dr. W. M. Phelps, recommending that the subjects of physiology and hygiene be placed as major subjects in the curricula of the secondary schools of the State. The resolution of Dr. S. G. Slaughter was also adopted, urging the departments of health throughout the State to assume control of all infectious and contagious diseases as syphilis, gonorrhea and their sequelae. In conformity with a resolution introduced by Dr. A. B. Hooe, the President of the Society, appointed a committee of five, known as the Committee on Eugenics, with instructions to investigate the question of legislation bearing on this subject, and to confer and advise with any committee from the State Legislature, State Board of Charities and Corrections, or any other organized body interested in this subject, this committee to report to the next meeting of the State Society.

The following officers were elected: President, Dr. Stephen Harnsberger, Catlett; vice-presidents, Drs. R. C. Bryan, Richmond; J. S. Davis, University, and B. R. Gary, Newport News; treasurer, Dr. M. W. Peyser, Richmond, and secretary, Dr. P. A. Irving, Farmville. The members of the Judiciary and Neurological committees remain the same as last year. On the Membership Committee, Dr. J. Garnett Nelson succeeds Dr. Greer Baughman. The latter succeeds Dr. J. W. Ayres on the Legislative Committee. Delegates appointed to the A. M. A. were Drs. W. E. Anderson and Kirkland Ruffin, with Drs. R. M. Taliaferro and Lomax Gwathmey as alternates.

Drs. Geo. J. Tompkins, Lynchburg, and H. S. MacLean, Richmond were elected councilors-at-large, to succeed Drs. R. S. Griffith and Edward McGuire, whose term had expired. Drs. H. S. Belt, South Boston; L. M. Allen, Winchester, and Troman A. Parker, Leesburg, were elected to the Council from the fifth, seventh and eighth districts respectively.

Upon organization of the new Council, Dr. Chas. V. Carrington was elected chairman and Dr. A. L. Gray re-elected clerk.

All present members of the State Board of Medical Examiners were nominated to the Governor to succeed themselves, except in the third district, Dr. H. H. Levy was nominated to succeed Dr. J. E. Warinner, resigned.

The retiring president, Dr. Southgate Leigh, and Dr. A. G. Gerster, New York, were elected to honorary membership.

The subject for general discussion at the 1914 meeting will be *Diseases of the Thyroid Gland*, subdivided as follows: *Causes*, Dr. R. M. Taliaferro; *Pathology and Symptoms*, Dr. J. C. Flippin; *Medical Treatment*, Dr. Geo. W. McAllister; *Surgical Treatment*, Dr. J. Shelton Horsley.

While Richmond was suggested by the Council as the next place of meeting, upon invitation of Dr. A. Barnes Hooe, seconded by Dr. P. S. Roy, Washington, D. C., was overwhelmingly determined on, and the fourth Tuesday in October, 1914, was the date set. The Washington doctors have even at this early date taken up the matter actively, and a committee of arrangements has been appointed by their local society. The energy with which this committee has begun work is well shown in that they have engaged headquarters for the next meeting at the new Willard Hotel, and have also secured the co-operation of the Washington Chamber of Commerce, this latter body having already written the president and secretary of our State Society and clerk of the Council. Dr. T. A. Parker, Councilor from the eighth district, was appointed to cooperate with the local committee of arrangements.

The visitors were handsomely entertained by the Lynchburg profession, and carried away with them many pleasant recollections of the city and its people. A pleasant incident toward the close of the meeting was the presentation of a set of books by Dr. McCarthy, in behalf of the exhibitors, to Dr. Geo. J. Tompkins, chairman of the committee of arrangements, as an appreciation of the many courtesies he extended them.

The Medical and Surgical Society of D. C.,

In celebration of its twenty-fifth anniversary, gave an elegant dinner at the University Club, Washington, on the evening of October 30th. In fact, the members of this Society gave over a good part of the day to the celebration, as Dr.

Ernest Laplace, of Philadelphia, was invited to give a surgical clinic at the Georgetown University Hospital in the afternoon. Prior to this time, Dr. William C. Gwynn entertained at a luncheon at his home in honor of Dr. Laplace, at which about 150 guests were present.

At the dinner, Dr. O. A. M. McKimmie acted as toastmaster, and a number of impromptu talks were given. The work done by Dr. Llewellyn Eliot, the secretary and one of the founders of the Society, was alluded to by several of the speakers who referred to him as "the Father of the Society." The occasion was both interesting and enjoyable, and one not soon to be forgotten by those in attendance.

The Virginia Public Health Association

Held its annual meeting in Lynchburg, on the afternoon and evening of October 23, during the meeting of the Medical Society of Virginia. Dr. P. S. Schenck, Norfolk, presided, and a number of interesting papers were presented. Officers elected for the next meeting are: President, Mosby G. Perrow, Ph. D., Health Officer of Lynchburg; vice-presidents, Drs. B. B. Bagby, West Point, and C. B. Bowyer, Stonega; secretary-treasurer, Dr. Lucien Lofton, Emporia, and J. Leo Faulkner, Lynchburg, assistant secretary-treasurer. Members of the Executive Committee for 1913-14 are Drs. J. H. Ayres, Accomac; P. S. Schenck, Norfolk; Roy K. Flannagan, Richmond; W. E. Anderson, Farmville; J. R. Perkins, Spencer; R. A. Moore, Phenix; W. D. Macon, Charlottesville; F. M. Brooks, Swetnam; William Painter, Big Stone Gap, and P. E. Tucker, Buckingham.

Fifteen new members were elected. The next meeting will be held during the last week in April, 1914, at the University of Virginia.

The Delegate System of the American Medical Association Adjudged Illegal by the Courts.

In the case of G. Frank Lydston *versus* John C. W. Wayman, States Attorney, Cook Co., Ill., in mandamus to compel service of *quo warranto* writs on the Trustees of the American Medical Association, the Appellate Court handed down the opinion (Oct. 9, 1913) that the American Medical Association is holding meetings contrary to law, that its elections and its delegate system are illegal and that each and every member is entitled to a direct vote.

Unless the Supreme Court comes to the

rescue, this court ruling will necessitate a complete reorganization of the American Medical Association which has worked under the present plan since the meeting in St. Paul fifteen years ago. According to Dr. Lydston, who is Professor of the Surgical Diseases of the Genito-Urinary Organs and Syphilology in the University of Illinois, and one of the most prominent and reputable men of his specialty in this country, the officers of the American Medical Association have been fighting against a decision of the question of the legality of the operations of the association for nearly four years.

The Pulaski County Medical Society

Was organized by the physicians of that County, October 18, in a meeting at Pulaski City. Ten of the fifteen physicians of the County were in attendance, and a committee was appointed to prepare a constitution and by-laws which will be submitted at a meeting on November 10. Dr. W. R. Cushing, Dublin, was elected president, Dr. G. G. Painter, Pulaski, vice-president, and Dr. R. H. Woolling, Pulaski, secretary and treasurer.

Board of Pharmacy of Virginia.

At the examination held October 21st, there were 28 applicants for Registered Pharmacist certificate and 12 for Registered Assistant certificate. The following were given certificates as Registered Pharmacists: H. R. Hamlet, Blackstone; A. J. Clark, Crozet; R. E. Wood, Norfolk; F. W. Martin, Norfolk; Macon Ware, Richmond; D. D. Johnson, (colored) Raleigh, N. C.

W. I. Beamer, Roanoke and R. N. Moir, Roanoke applied for Registered Pharmacist certificate and were given Registered Assistant certificates.

The following applied for Registered Assistant certificate and were successful: A. G. Eastwood, South Richmond; P. D. Hale, Pearisburg; I. A. Tennyson, Alexandria; E. M. Garber, Staunton; G. V. Durrer, Richmond; W. A. Thomson, Lynchburg; A. R. Warner, Norfolk.

The following were registered by reciprocity: A. W. Stern, Norfolk; S. A. Tschiffely, Leesburg.

The Board will hold its next meeting in this city on the third Tuesday in January. All ap-

plications are required to be filed with the Secretary, Mr. T. A. Miller, Richmond, at least ten days prior to the examination date.

Medical College of Virginia Formally Opened.

On the evening of October 30, the new Medical College of Virginia, at Richmond, the combined product of the old Medical College of Virginia and the University College of Medicine, was formally opened and dedicated to medical education. There was a large gathering of persons in attendance, and the speakers included the Governor of Virginia and a number of representative citizens, in addition to the dean and other prominent members of the faculty. The school with its 536 students has made an auspicious beginning and great things were predicted for it. A special religious service was held in connection with the opening on the preceding Sunday evening, at the Second Presbyterian Church in this city.

Recent Changes of U. S. Navy Doctors in Virginia.

Surgeon W. M. Garton has been transferred from the U. S. Naval Hospital, Norfolk, to Washington, D. C.

Surgeon R. B. Williams has been detached from the Naval Hospital at New York, and will succeed Surgeon Garton as executive officer at the Norfolk Naval Hospital.

P. A. Surgeon L. M. Schmidt has been transferred from the Naval Hospital, Norfolk, to the U. S. S. New Jersey.

Dr. Tom A. Williams,

Who, owing to the fact that he was detained in Europe, missed the meeting of the Medical Society of Virginia, has returned to Washington. During a four months' visit to England, he made communications to the International Congress of Medicine and the Bristol Medical Association, and took part in the discussion on Psychoanalysis at the meeting of the Bristol Association for the Advancement of Science.

Diphtheria Antitoxin

May be procured of the Virginia Health Department, Richmond, at any time, by any one in this State who may need it, at \$1.89 for 5,000 units—the normal dose for a case. We again bring this matter to the attention of our readers in view of the fact that the Department has

been informed that in one county, some druggists who have secured the antitoxin from the State at low rates are selling it at exorbitant prices to those who need it hurriedly.

Surgeon Hugh S. Cumming,

U. S. Public Health Service, is in charge of the sanitary survey of the Potomac River basin. The samples of water and oysters collected by the vessels from the lower portion of the river are examined at the laboratory at Colonial Beach, Va., and the Hygienic Laboratory, Washington. Later the work will be taken up on the upper river.

The Obstetrical and Gynecological Society,

Washington, D. C., at its annual meeting in October, elected the following officers: President, Dr. John F. Moran; vice-presidents, Drs. G. Brown Miller and Prentiss Willson; secretary, Dr. Truman Abbe; treasurer, Dr. D. W. Prentiss, and Drs. G. Tully Vaughan, A. R. Shands and Truman Abbe were elected members of the business committee.

Southern Medical Association.

The date of the annual meeting of this Association in Lexington, Ky., is November 18-20. The president, Dr. Frank A. Jones, Memphis, Tenn., the secretary, Dr. Seale Harris, Mobile, Ala., or any of the other officers will be glad to have any doctors interested communicate with them.

Witherspoon Club.

Some members of the senior class of the Medical Department of Vanderbilt University organized a social club at the beginning of this session, and gave it the above name in honor of Dr. John A. Witherspoon.

Surgeon C. P. Wertenbaker

Was detailed to represent the U. S. Public Health Service at the meeting of the Medical Society of Virginia at Lynchburg, in October.

Dr. Victor V. Anderson,

Formerly of Lynchburg, Va., assistant instructor in psychology at Harvard University Medical School, has been appointed assistant probation officer of the municipal court, Boston.

The Indiana State Board

Of Medical Registration and Examination makes an excellent report from its July exami-

nations. Of the 89 candidates examined at that time, all passed, an average of 75 per cent being required on the subjects.

Paralysis During Antirabic Treatment.

Public Health Reports for October 24 states that while Pasteur antirabic treatment is not usually followed by any serious complications, there is an occasional exception which keeps this treatment from being pronounced as always harmless. Two interesting cases, which received the antirabic treatment at the Hygienic Laboratory, Washington, and were followed by paralysis, are reported. It seems apparent that this paralysis which is of infrequent occurrence, is not a fixed virus infection nor due to a rabies toxin, but is the result of individual susceptibility. Physicians are urged to make report of this complication occurring in their patients, so that a proper estimation of its frequency may be obtained.

Married—

Dr. Cullen S. Pitt, of Barton Heights, Richmond, and Miss Edith May Watkins, also of Richmond, November 5, 1913.

Addition for Watts Hospital, West Durham, N. C.

We understand that Mr. George Watts expects to add a new building to the Watts Hospital, in West Durham, N. C., which will be used exclusively for patients with pellagra. This hospital has already 100 beds.

Progress in Control of Venereal Diseases.

The New York City Health Department reports that judging by the extent to which physicians are making use of its Wassermann Laboratory and to the increasing attendance at the Diagnostic Clinics, it is believed that venereal diseases in that city will soon be under as effective supervision as is tuberculosis at this time. Many physicians are also reporting their cases. For the first nine months of 1913, there was a total of 7,157 cases of syphilis, gonorrhea and chancroid reported by institutions, and a total of 6,283 cases of the same diseases reported by private physicians.

Vital Statistics to be Issued in Popular Form.

In view of the wide-spread interest in Virginia's vital statistics, soon to be transmitted the Governor as a part of its annual report, the

Virginia Health Department has announced that it will shortly reprint these statistics in the *Virginia Health Bulletin*.

Virginia may probably be admitted to the Federal registration district at an early date, if enough death certificates are filed before the end of the year to raise the recorded death rate in this State for 1913 to 14 per 1,000 population. This matter of reporting births and deaths is one in which we, one and all, may assist, and we should each do our part in helping Virginia win her place in the registration area.

A Woman Physician

Is needed at once for the Presbyterian Hospital and Dispensary at Tsinanfu, North China. The requirements are thorough medical training and considerable experience in practice. The applicant should possess a sound constitution and good health, good sense, ability to work harmoniously with others, and the dominating purpose to make her life and work contribute directly to the Christian and religious aim of the mission. Adequate support, including salary, traveling expenses, living quarters, etc., is provided. Further information may be obtained of Mr. Wilbert B. Smith, Candidate Secretary Student Volunteer Movement for Foreign Missions, 600 Lexington Avenue, New York City.

Scarlet Fever at Orphanage.

In the latter part of October, it was announced that there were 13 cases of scarlet fever among the children at the Lynchburg, Va., Female Orphan Asylum, though all cases were of a mild type and were isolated to prevent further spread of the disease. There are about 80 children in this institution.

Dr. Benjamin H. Gray,

Who has spent most of his time in New York City, since his graduation from the University College of Medicine, Richmond, in 1903, has located at 2007 Monument Avenue, this city, and will confine his practice to obstetrics and children exclusively.

The American Association for the Study and Prevention of Infant Mortality

Is to hold its annual meeting in Washington, D. C., November 14-17. Dr. S. S. Adams, of that city, chairman of the local committee of arrangements, will furnish any information desired.

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DIETETIC TREATMENT OF TUBERCULOSIS.*

By JOHN J. LLOYD, JR., M. D., Catawba Sanatorium, Va.

In considering this phase of treating tuberculosis, it will be well to recall that one of the prime characteristics of the disease is rapid and progressive loss of weight. To repair that already having taken place and to prevent further loss is one of the essential factors of treatment.

No rigid rules as to dietary can be laid down, for cases differ so widely that each must be treated on its own merits. An acute tuberculosis in a young adult requires very different handling from an early case in one who is up to his standard weight and shows only slight symptoms. A blacksmith and a banker will hardly eat with relish the same dietary, nor will a woman of sedentary habits require the same food as a day laborer. It is necessary to furnish each patient with a well balanced ration and this must be based largely upon the taste and previous habits as to eating.

The average healthy adult on moderate exercise has been proven to require about 3000 calories of food per day. Men require slightly more in proportion to weight than do women. Young people require proportionately more than older, this because the younger the cell the greater the avidity and rapidity of oxydizing food for tissue use. Thin people require considerably more than fat, due to more rapid loss of heat through radiation.

The human race has profited by years of experience, instinct and taste in choosing a dietary

suitable and sufficient for the maintenance of health. The standard dietary (Hutchinson) consisting of 125 grams proteid, 50 grams fat and 500 grams carbohydrate, based upon experimentation and yielding 3000 calories, is closely approximated by the meals served on many well kept tables. Generally speaking, fat and carbohydrate can be substituted one for the other to large extent; hence, the proportion of the two and the form in which they occur depend largely upon the financial condition and taste of the individual.

It is a recognized fact that recovery from any infection depends upon the establishment of an immunity toward this infection and that the result of continued under-feeding is to produce a condition of lowered resistance to disease. Under-nourished cells must maintain life first, and what energy they have to spare can be used in producing immune bodies; therefore, we must endeavor to furnish an extra supply of nourishment to the cells in order that they in turn may produce the immunity necessary for recovery.

The method of forced feeding so much in vogue a few years back has, happily for the patient, fallen into well deserved disrepute. To overload continually a digestive system already embarrassed by general toxemia and under-nourishment was only heaping insult upon injury, and was the direct cause of converting many hopeful into hopeless cases, or at least of materially retarding their progress toward recovery. The day of stuffing patients simply because they happen to have tuberculosis is past and we need only mention it to condemn it.

Let our aim be to supply all the nourishment the patient needs in health and a little extra on account of his disease and endeavor to increase the bodily weight to its previous normal, before tuberculosis became active, or slightly above and keep it there; in other words to bring about

*Read before the forty-fourth annual meeting of the Medical Society of Virginia, at Lynchburg, October 21-24, 1913, as a part of the Symposium on Tuberculosis.

a condition of slightly over-nourished cells so that they may have a good balance on deposit to spend in ridding the body of its infection. Excessive weight gain is neither essential nor desirable but a return to the normal or slightly above is to be desired.

Experience has conclusively proven that the tuberculous patient not only tolerates but requires a considerable increase in the proteid and fat ration. Additional proteid is necessary to repair the tissue waste and more fat to save heat loss. As the carbohydrate is the bulky food constituent, the amount is slightly reduced and its equivalent made up in proteid and fat which should preferably be of animal origin, as this class of these foods has been found more valuable in tuberculosis than that of vegetable origin. The proteid content is best supplied by meat, eggs and milk—the fat by milk, cream, butter and the yolk of eggs and bacon. Hence it will be seen that if we prescribe, in addition to three well balanced meals, three pints of milk with a slight increase of meat and butter, the proper amount of food is obtained.

For instance, a dietary such as the following furnishes the necessary quantities of food constituents for a patient with unimpaired digestion:

Breakfast—8 A. M.—Fresh fruit, cereal, breakfast bacon, 2 eggs, soft boiled or poached, biscuits, coffee, milk and butter.

Lunch—10:30 A. M.—Glass of milk.

Dinner—1 P. M.—Soup, roast beef, mashed potatoes, stewed tomatoes, boiled spinach, corn pones, gelatine jelly and cake, milk and butter.

Lunch—4 P. M.—Glass of milk.

Supper—6 P. M.—Creamed chicken, grits, hot rolls, cocoa or hot tea, milk and butter.

Lunch—9 P. M.—Glass of milk

The above is only an illustration of many combinations which may be made at moderate cost. Where cost must be still more considered, the proteid ration may be furnished by using the cheaper cuts of meat and the fat content furnished in the form of fat bacon and oleomargarine.

In feeding children the requirements of the case are different. It must be borne in mind that children require proportionately more food for their weight than do adults. Children also have a considerably greater tolerance for fats, and therefore they should receive more milk,

butter, bacon, etc., proportionately than the adult.

Open air treatment goes hand in hand with dietetic treatment, for life in the open air sharpens the appetite, stimulates the digestion and lessens the toxemia. If to these two is added rest, while symptoms are present, we have the tripod upon which recovery depends. It is hard to overestimate the benefits of rest in tuberculosis, and especially its effect upon the digestive system. We have repeatedly seen rest in bed overcome long standing dyspepsia, thus enabling the patient to consume and assimilate a proper amount of food. The body at rest requires considerably less food than when at work to maintain health; consequently we can see the desirability of keeping patients quiet in order that the least possible amount of waste and the maximum amount of nourishment be produced.

So much for generalities—now to consider the indications in feeding patients in the different stages of the disease and in dealing with complications. In the very early case, before symptoms, especially derangement of digestion, are marked, very little alteration of a general home diet is necessary. If the patient's weight is about normal and he be put on the rest treatment and given three good meals and three pints of milk in addition, he will get more than the required amount for the body in health, and therefore enough food for his needs. Cases diagnosed at this stage are unfortunately very few, for the patient does not feel sick enough to see a physician or the disease is not recognized at this time.

In much the larger number of instances the case is not diagnosed until the moderately advanced or far advanced stage is reached, when symptoms are much more pronounced.

Indigestion and lack of appetite are among the conditions we most often have to face in feeding patients. Total loss of appetite amounting to intense disgust at sight of food is not at all uncommon. At the outset of treatment, after first satisfying ourselves of the fact, we must convince the patient that the gastric disturbance is a symptom of his disease; that his stomach and intestines are not organically diseased, but that the whole body is suffering from under-nourishment; that the digestive organs share this weakness, but that after a few weeks of better feeding his digestive functions will

improve. This is rather a hard task at times, for these cases not infrequently have thought for months they were suffering from "stomach trouble" and have as a consequence cut off one article of food after another, until nothing but the lightest diet of slops is being taken.

They will often in a few days be able to take and retain a fair quantity of nourishing food if due persuasion and tact are used and the food served tastefully and in small quantities. Of course, cases of this kind should be kept constantly in bed, and the first day or two probably only a milk diet prescribed. The rest in bed, by reducing the absorption and thus lessening the toxemia, will, in a large measure, relieve the embarrassment of the digestive organs and enable them to take up their proper function. If the digestive system is tolerant, we may push the patient by adding little by little, until after a week or so he is taking full meals. At times this return to larger quantities of food is accompanied by considerable distress, which may be alleviated somewhat by proper medicinal measures, but our course of returning to full meals must be persisted in if possible.

Febrile patients are not exceptions to this rule, and if they can digest the full diet in spite of the fever, it should be allowed. Those patients who can assimilate the general diet improve much more rapidly than those who, perforce of digestive disturbance, are compelled to eat only limited articles of food. In case the digestion is especially bad at the height of the fever, a light meal or liquids may be given at this time, and the large meals given before and after the temperature has risen. Increased nutrition usually produces a drop in temperature, and should it not do so, then the case is indeed a difficult one to benefit.

In feeding cases with impaired digestion it is well to insist upon their eating the staple foods and allow sugars and pastry in very small quantities, if at all. Sweets and pastries, though they may be palatable at the time, will almost surely result in the formation of gas and hyperacidity, with probably nausea and vomiting and total loss of appetite. Fried foods of all kinds are bad and meats are more digestible if cooked without grease and beef served rare. The bulky foods are to be avoided and the diet made as concentrated as is possible.

When vomiting occurs after eating, when not produced by paroxysms of coughing, gastric

lavage or withholding food for twelve to twenty-four hours with attention to the bowel movements, will often bring relief. A glass of hot water taken on rising is a splendid thing for the stomach, and is beneficial in many cases.

Diarrhoea, so often a symptom of tuberculosis of the intestines, is a difficult matter to combat. Here the indication is to place as little work as possible on the diseased intestines, but at the same time properly nourish the patient. To meet this end the food served should consist of concentrated foods, bulky articles being religiously avoided. Milk, eggs and meat are our main foods for this condition, and must be served in many different ways, as our aim is to persist in this dietary as long as necessary, and at the same time retain the appetite. If the indigestion persists under the above diet, it will be necessary to resort to a strictly liquid diet, using perhaps predigested foods. As improvement in the condition takes place the bulkier articles may be slowly added to the menu, and the patient gradually placed on full diet.

Acute, intercurrent disorders are dieted just as under any other conditions, but we should keep in mind the fact that the patient has tuberculosis, and therefore bears starvation badly.

When the upper portion of the larynx or the pharynx is involved we have a most distressing condition to meet. Deglutition is very often impossible without previous local anesthesia of the pharynx, and even then the patient becomes easily strangled. Here again concentrated food is indicated in order to save the patient pain. If swallowing liquids is very difficult, and frequently liquids produce most difficulty, the patient can often swallow much better if lying flat on the abdomen.

If the cough is so exasperating as to effect the appetite, especially if it interferes with the proper rest at night, appropriate measures for its relief are indicated.

The dietetic treatment of hemorrhage is of considerable importance in that the indications are to reduce the liquid content to the minimum and avoid bulky and stimulating foods. Hot foods are stimulating, hence all food is to be served cold. For the first twenty-four hours no food whatever should be given if the hemorrhage is a large one. Only sufficient liquid to allay thirst and prevent discomfort is allowed,

and this preferably as finely crushed ice in small quantities. At the end of twenty-four hours the diet should be of small bulk, served cold, at slightly shorter intervals than before the occurrence of the hemorrhage, the liquid content kept to a minimum and only milk and water allowed as beverages. After continuing this until all fresh blood has disappeared from the sputum, the general diet may then be gradually replaced. As the recurrence of hemorrhage is often directly due to indiscretion in diet, this should be carefully considered in dealing with the condition.

In tuberculosis we must bear in mind the fact that the condition is one calling for the maximum amount of nourishment with the least possible embarrassment to the organs of digestion and excretion. We should also remember that we are dealing with a chronic process requiring years for recovery, and it is, therefore, necessary to husband at every point the strength of the patient for the fight. Bad advice as to the food necessary will produce bad results. We must be specific in giving advice as to what articles are allowed and what forbidden, and, in addition, we must prescribe the quantities to be consumed. In the management of cases in private practice, there is nothing so helpful to both patient and physician as a careful daily record kept by the patient as to his hours of rest, etc., the exact amount of food consumed and at what hours. Regularity of meals is one of the great necessities in feeding patients, and eating when not fatigued is of equal importance with regularity.

In conclusion, I should like to add that, however well we may feed our patient or how many hours he spends daily in the open air will not effect the result nearly so much as if *to proper food and fresh air we add REST while the disease is still active.*

MEDICAL TREATMENT OF TUBERCULOSIS.*

By STEPHEN HARNSBERGER, M. D., Catlett, Va.

Introduction.—Locke says, "It is easier to believe than to be scientifically instructed." The appointing committee must have read that. Anyway I was requested to record my own crude observations and experience in treating

tuberculosis. This I have in part outlined and I trust that my effort may evolve something of more than transient interest. And I would have you keep in mind this truth—that no one can say anything that anyone else can use just as it is said. The rational use of every suggestion must be adapted to the varied requirements and changed environments of the individual case under treatment.

Early Experience Amateur.—My first experience began in the early seventies, when pulmonary complaints were fixed by that ponderous trio—bad air, bad hygiene and bad cod-liver oil. That was before I began the study of medicine. Though the cause of the recovery of the consumptives who went into the army during the war between the States was not immediately obvious, the fact of their restored health led me to believe there was balm in closer communion with nature and a fragmentary discontinuous fat meat and hard-tack diet. I advised three persons, one with hemorrhages and hectic, said to be tuberculous by physicians of standing, to stay out of doors day and night and to make fat hog meat a part of their regular meals. They did this and all recovered. Two, at least, are still living and in good health. During the thirty-six years of my professional life, I have remained "wedded to the idol" of my early days.

I wish to state at this juncture that I shall devote my time to the treatment and eradication of tuberculosis and not to the treatment of the symptoms of the disease. In order to do this, I must necessarily encroach upon ground already covered by previous speakers.

Fresh Air and Sunlight.—Tuberculosis, like crime, is best subdued by light. There can be no tuberculosis without the tubercle bacillus. The tubercle bacillus lives and multiplies only in the absence of pure air and light. As long as the germ is open to pure air and light, it remains inhibited and harmless. Hence, to the extent that pure air can be utilized by the host does the danger from tuberculosis become lessened. The first, last and indispensable principle, then, in the treatment of these cases is to see that the patient is at all times exposed to pure, fresh air. And while this is beyond dispute, we must not be lavish with the sunlight. This, never neglect to impress. Intense sunlight depresses, and anything that depresses, injures. Have the air and light enter, but al-

*Read before the forty-fourth annual meeting of the Medical Society of Virginia, at Lynchburg, October 21-24, 1913, as a part of the Symposium on Tuberculosis.

ways shade from the direct rays of the sun when the thermometer ranges high.

Body Resistance Essential.—The very fact that so large a proportion of tuberculous persons who come under observation get well, even without treatment and mostly under the worst conditions of environment, seems sufficient evidence that the protective forces of nature are the only dependable means of cure we have.

The well nourished have most stamina. We need to feed differently. We pay too little attention to the prime factors which underlie the majority, if not all, of these cases. In my practice the pre-disposed to tuberculosis have been those who shunned meats, especially the fat of meats. Nor are the heavy meat eaters, for obvious reasons, exempt. Years ago, I recognized this fact. And whenever I could get my tuberculous patients to eat and digest fats, especially hog fat, (it is easy to learn to eat it), I felt optimistic, and rarely did I fail to see them recover. Hence, it has been my invariable rule to put these patients on the fat test. Whenever, from obstinacy, they refused to take fat, especially hog fat, I gave a gloomy prognosis and one that has rarely gone astray. On the other hand, the tuberculous patient who would persist in taking hog fat, unless he was too near death, would improve and ultimately get well. It may be that these are the kind of people David referred to when he said, "Their soul abhorreth all manner of meat; and they draw near unto the gates of death." Eat meat, but eat it sparingly. Eat vegetables, fruits, nuts, etc., but eat sparingly. Give the metabolic processes a chance to work unhindered. Persons who do not consume some fat hog meat or other fats or oils lack that something which resists the invasion of the tubercle bacilli. Their cell loss is uncompensated and, of course, cell activity is lowered. Fats are necessary to carry on the metabolic processes that keep up compensatory capacity. You do not or rarely see tuberculosis in fat eating persons. You do not see it even in the cotton seed oil eating negroes in the South. The negroes who work in the oil mills in Texas saturate their bread in the hot cotton seed oil and eat it abundantly every day the mills run. They are practically immune to tuberculosis. And I am told that many of the more intelligent negroes who are exposed to infection or who are in the initial stage at once seek work at the oil mills; and they soon take on weight and strength. Fats and

oils seem to supply to the system one therapeutic aid which helps to inhibit, subjugate or oust the etiologic microbes; not, however, in any specific way, but through the added resistance it furnishes.

Child Welfare.—Viewing the matter in the light of autopsy, rather than of tuberculin findings, we must be impressed with the necessity of directing the major part of our efforts to the care of children. To content ourselves with marking time, as in the past, is to doom not only the predisposed and actively tuberculous children, but as well to concentrate the action of all the worst etiological factors on the physically well. Obviously it is first and foremost by the employment of educational methods in the schools and homes that we can best ensure the cure and prevention of this disease in the future. The only dependence rests on the prophylaxis of education; and I wish to reiterate the importance of this.

The pre-natal and later acquired faulty mechanism, which lays this early period of human life wide open to tubercular infection, demands profound thought, keen judgment and imperative social and legal action and regulation. The persons most susceptible to tuberculosis are the children that are made susceptible by pre-natal delinquencies, or bad environment and defective care, or when weakened by some preceding acute disease. Now, if the seeds of this disease are planted in infancy, as we are told they are, then we should see that the ground is barren to their growth.

New biological facts must be learned in regard to the internal secretions, etc., before we can get a trustworthy working conception of the peculiar taint or fault which invites activity of the tubercle bacillus. But one thing we do know—we want more energy construction and less energy consumption in these little ones. The question is: How are we to get it?

Increase Inherent Defensive Immunity Mechanism.—Wright says: "No one recovers from an acute or chronic bacterial disease, unless it be by the production of protective substances in his organism. No one secures protection against disease, except, again, by the production of protective substances; and, finally, no one lives in the presence of infection and repels that infection except by the aid of the protective substances in his blood." "Therefore, the prognosis depends upon the capacity of the organism.

to develop specific protective substances, and no person gets well unless the protective mechanism of the body develops sufficient anti-bodies to neutralize the effects of the overdoses of the toxins."—*Forchheimer*.

We take the following from T. D. Wood's statistics: 1,000,000 out of 20,000,000 children attending the public schools of this country die of tuberculosis before maturity; 5,000,000 public school children suffer from malnutrition, etc.; 6,000,000 have enlarged tonsils, adenoids, or enlarged cervical glands, which require surgical attention; 10,000,000 (in some schools as many as 98 per cent.) have defective teeth, which interfere with health; 15,000,000 need attention for physical defects, which are injuring their health, etc.

If 1,000,000 of the public school children die, as stated, how many millions have the disease? This does not take into account the great number of children who have the disease, and who are not of school age; nor does it include those of school age who do not attend public schools and others who go to other than public. And we might with propriety mention the great numbers who have tuberculosis and who give no symptoms of the disease.

According to Calmette and others with slightly lower percentages, 9 per cent. of children under one year of age are tainted with tuberculosis: between one and two years, 22 per cent.; between three and five years, 33 per cent.; between five and fifteen years, 90 per cent., and over fifteen years of age, from 91 to 97 per cent.

Viewed in this relation, it becomes a question of vital economic interest and public policy. Communities, especially municipalities, must take some action commensurate with the importance of the matter. The tuberculous child should be properly cared for. The well child should be adequately protected against infection. In no other way can we expect to effect optimum obstacle to the spread of the disease. The boy and the girl are father and mother to the man and woman. To represent their highest value as assets to the community, they must be physically, mentally, morally and spiritually sound.

In the home, where the tuberculous child, *if the disease is far advanced*, cannot be segregated, if practicable, it should be done at

public expense. In daily contact there is gross and definite menace. In cities and other compactly settled communities, tuberculous school-children should be taught in classes to themselves, and in open-air buildings. In the absence of this arrangement, these children had better go untaught than that healthy children be exposed to the disease. In fact, many of these children should not be sent to school, for the tax on their systems, especially nervous systems, hazard their chances of recovery.

The weaklings under school age demand special and constant care. Give them fresh air, under rational regulation and protection, and strive to build up their vigor by every possible means. Children are particularly inclined to malnutrition, and the most frequent nutritional error is the lack of fats, lime, soda, etc. Teach them to take cream, fats and oils. Give them the organic and inorganic salts that go to make bone, muscle, etc.; also iron and manganese, and use such other auxiliary aids as best keep the blood cells at par. The apple contains an abundance of potash, soda, magnesia and phosphorus. All ripe fruits supply organic salts to the system and to the red blood cells. They also keep the intestinal canal free of the products of fermentation, making a bad culture medium for germs in the intestines. Meat in small amounts is essential to a child's growth. Prolonged or overcooking withdraws the lime and phosphorus from meats, which makes faulty food for children. Grape juice and fresh ripe grapes, in season, are highly relished by most children. If the juice is given in small quantity at a time, their taste for it lasts. It is the next best single therapeutic remedy they can take. It contains nearly as much nutriment, quantity for quantity, as milk, and it does not produce gastro-intestinal errors, as does milk. Besides its food and anti-fermentative worth, it aids digestion and assimilation. Persons who take it for long periods gain in weight and strength. And it seems to aid glandular function—just what most children need, especially the tubercular disposed. Grape juice and grapes have superseded milk in my adult practice since 1879. Two to three pounds of grapes daily will put on fat. Owing to the large percentage of carbohydrates and food salts, persons can live on grapes alone for a long period. They are also laxative and diuretic.

It is especially well to see that glandular

function is kept active. With good glandular activity, which is usually impaired in children, they are apt to withstand even the infection of tuberculosis. Besides the long range of fruits and berries, or the juices of fruits and berries, which I prescribe constantly to both sick and well, we have an easily administered and consistent co-worker in calomel and corrosive sublimate. Calomel in fevers and infections has maintained supremacy. It is sedative to the gastric mucous membrane, an intestinal alterative, and its power in this respect reaches the glandular apparatus and the emunctories. It promotes activity of all glandular structures, and commonly the secretions are increased in amounts. The lymphatic or absorbent system, also, becomes more elastic, and morbid products are absorbed and eliminated. There is probably not an organ or gland in the body, not even the pancreas, thymus gland, bone marrow and heart, upon which calomel does not manifest a tonic or alterative effect. There will often result a considerable improvement in the ordinary forms of malnutrition or anemia from the judicious administration of calomel alone. It seems to add cellular richness to the blood, to improve nutrition and to increase the weight and vigor of the body. It has been my custom to give calomel in doses of one-twentieth to one-fourth of a grain from two to six times a day, as indicated. When required, assist by enemas and pleasant laxative agents. If necessary to get desired results, do not hesitate to keep the calomel up every day for weeks or months. I always prescribe the best English calomel—it differs from American calomel in appearance, taste and color. I have never known it to give the least trouble. When it is advisable to hasten results or modify the course of infection quicker, my reserve is corrosive sublimate—one one-hundredth to one-eighth of a grain three or more times a day; adult doses larger.

This clinical knowledge, I find since writing my paper, now bears the stamp of science. The science of *ions* is brought out by Dr. Lewellys F. Barker, of Johns Hopkins, in a paper read before the Canadian Medical Association, August 1913. In speaking of the autonomic (sympathetic) nerves supplying the viscera and glands of the internal secretions, he says: "In the third place, the amount of certain *ions*, calcium, magnesium, sodium, etc., present in the medium through which the nerve

terminals act upon the end organs (smooth muscle, secreting gland), seems *profoundly* to influence the activities of the system concerned."* And Cushing says calomel retards the decomposition of food in the intestines; also it is a powerful diuretic. Mercury in small doses long continued increases nutrition and weight. After prolonged use, mercury is found in almost every organ of the body.

Influences Modifying Infection.—Tuberculosis is a penalty of civilization. It is the inevitable sequence of close housing and gross carelessness. Laziness, false pride and inebriants are ruling contributory factors. Tuberculosis, with pitiless certainty, stamps infancy and childhood with its indelible mark, which remains, now hidden, now visible, throughout life. Those of weak tension die. Only the strong survive. In this far, death is life, for in the death of the unfit rests the greatest safety of the strong. Struggle and danger is a basic condition of progress. It is the whip which urges to preparedness against the forces that subdue and destroy—that makes the earth quick with life, and that makes life worth the living. Upward our pathway leads, ascending, not descending—ever emerging from the gloom of the years just passed. Tuberculosis is gradually losing its own power to destroy human life. When the less resistant are thinned out from decade to decade in the way established by nature and further aided by the resistance gained by a more resistant infancy and childhood, the most strongly impressed predisposing ages, the prevalence and virulence of tuberculosis will grow less and less. Science is striving to render the etiologic microbe more innocuous and to lessen the inherited tendency to tuberculosis. Therefore, the decrease of prevalence and virulence, with the increase of resistance to the disease, is likely in the future to bring about fewer deaths from tuberculosis than is caused to-day. And if we will but give proper credit to the still acting influence of natural selection, which is patent through all nature, we may be pardoned for assuming that the day may come when tuberculosis will perhaps cease to concern mankind. Natural selection is a potent force in grading up mankind—it leaves those who are best suited to the environment. And then that

*It gives me much pleasure to acknowledge my indebtedness to Drs. Forchheimer, Philip S. Roy and J. Staige Davis.

something (stamina, if you like) which we call resistance is gradually gaining in power, and it may be the main reason why tuberculosis is decreasing, as well as the fact that so many with symptoms of infection get well under any treatment, and even without treatment and in spite of unsatisfactory conditions and surroundings. It is also probable that a large proportion of the cases which enter sanatoria and are discharged as well belong to this class. For even in sanatoria we frequently see the milder cases steadily grow worse, while out of sanatoria many with definite lesions get in excellent condition and later have been found to be entirely free from any symptoms or signs of active tuberculosis. I make no reflection on sanatoria. They are fine educational centers, and the conscientious patients who go out from them scatter instruction that carries authority.

Status of Tuberculin not Settled.—For reasons stated above, I feel constrained to put the following question: Can we gauge and read the value of any treatment, especially tuberculin and allied therapy, instituted for the cure of tuberculosis? In one we have high resistance of the individual versus virulence of the infecting organism, or high resistance versus virtually innocuous organism. Or else the reverse—minimum resistance versus virulent organism, or minimum resistance versus innocuous organism. It is known, or at least fair to assume, that the potency of various strains of tubercle bacilli differs to extreme degrees. We can perhaps gauge and measure the strength of these, but we cannot gauge and measure the value of the resistance of the individual patient. Therefore, no one can forestall what the outcome will be when tuberculin is administered; nor can any one tell what effect the tuberculin had upon the patient—whether he lives or dies. It is claimed evidence shows that one infection with tubercle bacilli may immune against a second attack. But even should this be true, we cannot tell which of the various strains of tubercle bacilli immunizes against a second attack; nor do we know which of these strains is best adapted to the purposes of bacterial therapy in a given case. Hence, I wish to emphasize what seems to me to be an undeniable fact—that the cures, or majority of cures, we see to-day are due, in great part, if not fully, to individual resistance to the less toxic infections, and not to any preferred direct therapy

that we use, and that cases with scant resistance infected with virulent strains of tubercle bacilli succumb, as a rule, under the best and most scientific up-to-date treatment. From what I can understand, tuberculins give evidence of value only in the milder cases, and we know that the milder cases get well under any treatment and forsooth without treatment.

Probably in no other infection have we any counterpart to the pathological condition found in connection with tuberculosis. The bacilli are walled off either in “dead caseous material or within the fibrous, non-vascular tubercle, alike inaccessible either by the blood stream or by the inspired air.” Therefore, it is not unreasonable to believe that an impenetrable defense is presented to every means of direct anti-toxic or bacteriolytic medication.

Tuberculins, whence their conception or make, are not doing what it was thought and claimed they would do. While some shadow of results seems enough to nurture continued effort, nothing has been established as sufficiently basic to warrant the expectation of the originators or the hope of a wistful public. It does appear that those who have been tuberculinized and sent out from sanatoria as benefited, do show a longer stay to the activity of the infection than do those who have not had tuberculin. This, to the bacteriolytic student, with his inborn interest and pre-existent knowledge, gives the encouragement and hopefulness that leads to further trial. But in the last analysis, with all our interest, expectation, work and increased knowledge, we must confess that medicine has little in its favor, and that we stand to-day as—

“An infant crying in the night,
An infant crying for the light,
And with no language but a cry.”

SURGICAL TREATMENT OF TUBERCULOSIS.*

By JOSEPH T. BUXTON, M. D., Newport News, Va.

The conditions present in surgical tuberculosis are in the beginning a tuberculous deposit, primary or secondary, so situated as to be accessible to surgical intervention.

Allow me at this time to encroach upon that phase of tuberculosis discussed by my friend,

*Read before the forty-fourth annual meeting of the Medical Society of Virginia, at Lynchburg, October 21-24, 1913, as a part of the Symposium on Tuberculosis.

Dr. LaRoque, pertaining to diagnosis, for upon that hinges our mortality rate. The easier the diagnosis, the worse the prognosis, applies more aptly to the treatment of this condition than to any other human ailment. More mistakes are made by want of looking than by want of knowing, so that it behooves us to resort to every known method in attempting to arrive at an early diagnosis.

For purposes of this paper I shall divide surgical tuberculous conditions into two classes, general and local. Under the general treatment I shall include those hygienic and dietetic measures looking toward the upbuilding of the resistive forces of the patient.

Fresh air, feeding and the direct rays of the sun are the most important general measures influencing the cure of these conditions. The impression among many seems to be that fresh air is much more important in pulmonary tuberculosis than in the same disease effecting other parts of the body. As in all forms of tuberculosis, it is a case of struggle between the individual on the one side, and the disease on the other.

The benefits to be obtained from air depend upon the amount of oxygen it contains and its freedom from poisonous materials.

Sunshine is of great value in surgical tuberculosis; the valuable elements are not the heat rays, and are probably not the light rays, but are rather the chemical rays that exist beyond the violet end of the spectrum. These rays penetrate powerfully and have a decidedly beneficial effect on the nutritive processes. The diet should be mixed and should contain a sufficiency, not only of fats and of proteids, but also of carbo-hydrates. The necessary mixture of nutritive elements should be in an easily assimilable form—milk in large quantities, four to six eggs daily, a moderate amount of meat, fresh vegetables and fruits.

Joint Tuberculosis.—In the local treatment of joint tuberculosis, it is difficult to determine just how far surgical measures can modify the various forms of this disease. If we can remove the focus of the disease, no matter what it is, we have accomplished much, as the danger lies in the fact that the tubercle bacilli may push their way into neighboring tissues, or organs, and be carried to distant parts through the blood and lymph channels. If the danger of

the removal of a focus is greater than its presence, it would be wiser to leave it. The possibility of mixed infection must always be borne in mind and no surgical procedure undertaken without the strictest aseptic precautions prior to and subsequent to operation.

The local treatment of joints may be divided into conservative and radical measures. Under the head of the former, the joint should be put at absolute rest by the application of a plaster of Paris cast. This should be snugly applied with enough padding to make it comfortable. It is important to place the joint in that position, in which the antagonistic muscles are at perfect equilibrium. If the joint is absolutely immobilized and equilibrium accurately established, muscle twitching will soon stop, and with it all pain cease. With cessation of pain the patient will sleep better and eat better, and there will be general improvement in his condition. In the great majority of cases, extension is not necessary, except in involvement of the upper surface of the head of the femur, in which condition Buck's extension apparatus is advisable. No definite rule can be laid down as to the length of time of immobilization. The surgeon should be governed in each case by the individual conditions. It is better to err on the safe side and keep these joints at rest until we are sure that the tuberculous process has entirely healed.

Vulpiris' experience seems to have demonstrated that practically as fine results can be obtained with exposure to the arc light or mercury lamp as to the direct sunlight, and at sea-level as in the mountains. He reports surprisingly complete cures in numbers of cases, even in those which had resisted all other treatment for months and years. The pain and swelling subside, the suppuration dries up and the lesion heals over, while the stiff joint regains unhopod for mobility.

In diseases of the elbow, wrist, knee and ankle, the daily application of the rubber bandage above the joint to procure slight venous stasis, or Bier's passive hyperemia, has been found very helpful and useful as a routine. This also applies to the use of cups over sinuses, with the same end in view, by suction to increase the vascularity and phagocytosis. This treatment produces results by the increased resistive power secured by a large local supply of

leucocytes. It is undoubtedly valuable in some cases. The degree of hyperemia must be moderate, and must never be sufficient to result in pain. The treatment is founded upon the principle announced by Laennec many years ago, that cyanosis is antagonistic to tuberculosis.

The radical treatment of tuberculous joints consists in the production of ankylosis by resorting to the operation of resection. Murphy, after sawing off the articular ends of the bones, disinfects the field of operation with a 5 per cent phenol solution, and completes the operation by the insertion of an interosseous magnesium splint to aid in maintaining approximation and to favor bony union. These splints are two in number, and should be placed at right angles to each other. Fine silver wire and phosphor bronze are used as ligature material in preference to catgut. In children erosion or the removal of diseased bone only is preferable to excision in a large majority of cases, since the latter operation usually interferes seriously with the epiphysis, and thus greatly lessens subsequent formation of the bone. At the ankle or wrist this is especially indicated, since the spongy character of the carpal and tarsal bones renders the complete removal of all diseased tissues very difficult. With palliative measures and several erosions a useful movable wrist or ankle can often be secured in the early stages of the disease of young children. Excision of the metaphysis with implantation of a portion of the tibia has been successfully done in a number of cases. The technique of the operation as given by Murphy, of Chicago, in the case of a child with tuberculosis of the upper end of the tibial shaft is as follows: Cut into the periosteum, elevate it carefully from the bone and cut the bone above and below the disease, always keeping on the shaft side of the epiphyseal line. Enucleate that portion of the bone out of the periosteum. If there is no infection, immediately transplant a piece of bone from the opposite tibia. The bone will be fully reproduced. If there is infection present, do not transplant until it has ceased to give any evidence of activity.

Tuberculosis of the spine, or Pott's disease, is of more common occurrence than tuberculosis of any other bone or joint in the human body.

Briefly, the end to be attained in the treatment of these cases is to throw the weight on

the posterior portions of the vertebra until the disease has run its course and ankylosis occurs. To give such support and provide absolute fixation by the use of external appliances, such as plaster jackets or braces, is mechanically impossible.

Post-mortems have been made on individuals who sometime during life had had Pott's disease, from which they recovered. In some of these individuals a firm ankylosis had occurred between the laminae of the affected vertebrae, and also between the spinous processes. The whole of the posterior portion of the vertebrae were firmly fastened together. It has been deduced that the cure of the disease was brought about by the absolute fixation thus rendered. This deduction is in accord with the cure of tuberculous joints elsewhere in the body. If by operative interference we can hasten the ankylosis, much will be accomplished toward the cure of the patient. The object of these operations is the same, i. e., the formation of a strong posterior splint to prevent absolutely any movement of the diseased portion of the spine.

The technic of the Hibbs's operation is as follows: The patient is placed in the ventral position. "A longitudinal incision is made directly over the spinous process through the skin, supra-spinous ligaments and periosteum to the tips of the spinous processes. The periosteum is split over both the upper and lower borders of the spinous processes and the laminae, and stripped from them to the base of the transverse processes." The spinous processes are then subjected to green-stick fracture near their bases, about three-fourths through their upper and lower diameters. The ribs are then pressed downward to repose in the denuded area caused by fracture of their fellow-spines below. This is repeated with three or four spines above and below the diseased area. An effort is made to secure ankylosis of the laminae, the advantage of which is obvious, for, instead of having an ankylosis of only the spinous processes, the entire posterior surface of the affected vertebrae, and two or three vertebrae above and below will grow together. They will be immovable one on the other. By this broad ankylosis any tendency to rotation or rocking will be prevented. To obtain this condition, the periosteum is pushed back well on the lateral process and a chip of the lamina from upper vertebra is raised and bent downward, without

completely severing its connection from the lamina of the vertebrae below. The lateral walls of the periosteum and of the split supra-spinous ligaments are brought together over these processes by interrupted chronic catgut sutures. The skin wound is closed and a steel brace applied with the space between the uprights increased somewhat at the site of the wound, so as not to make pressure on it. Rest in bed is absolute for eight weeks. During the next four weeks sitting up is permitted; at the end of the twelfth week walking is allowed. The brace is continued for another month, when it is removed for a part of each day, until gradually it is left off entirely.

The following technic for the transplantation of bone is used by Albee: the patient is in the ventral position. A curved skin incision a little to one side of the median line is made and the tips of the spinous processes exposed. With a chisel the spinous processes and the inter-spinous ligaments are split longitudinally to a depth of about three-fourths of an inch. This is done to all the diseased vertebrae, and to at least one healthy one on each side of the diseased area. The gutter for the transplant is now ready, and a hot saline is placed in the wound. With the patient still in the ventral position, the leg is flexed on the thigh, a sand bag placed in the popliteal space and an incision made over the crest of the tibia. A wedge-shaped piece of bone of the desired length is removed and placed in the gutter formed for it. Care must be taken in the removal of this piece of bone that too much force be not used. The wedge should be secured by chiseling carefully on both sides of the tibial crest. Post-operative treatment consists in maintaining the recumbent position on a gas-pipe frame or a fracture-bed from five to twelve weeks, after which the patient may go about without apparatus.

In tuberculosis of the urinary tract, surgeons are becoming more alert in their efforts at an early diagnosis. Formerly, the operation for nephrectomy for tuberculous kidney was performed only in advanced stages of tumor presentation and general urinary and constitutional disturbance. These operations were accompanied by a very high mortality. Later, with the use of the cystoscope and catheterization of the ureters to determine whether or not the condition was unilateral, there has been a

decided drop in the operative death rate. To-day, with a still more careful study of our cases, especially with reference to the detection of slight albuminuria several months prior to any symptom of tuberculosis, as well as the presence of tubercle bacilli in the urine, which may be found, according to various authors, in from 20 to 30 per cent., there has been a still further decrease in mortality.

For the operation of nephrectomy, the incision should be made so as to give the greatest possible exposure consistent with safety. The vessels should be ligated individually when possible. In those cases, in which the kidney is immobile, the capsule may be stripped and a clamp applied to all structures below the hilus. The question of drainage is determined by the operator. I recently saw Charles Mayo fill the wound with salt solution and close it without drainage, saying that this procedure facilitated the absorption of the material with the attenuated organisms before favorable conditions are established that would increase the virulence of the organism.

In the very extreme cases where both kidneys have already become involved, climatic changes with palliative operations may add to the length of life and the comfort of the patient. If it can be shown that the disease is confined to one kidney, removal of the organ is indicated. In about 20 per cent. of the cases the ureter is involved sufficiently to necessitate removal. It is the practice of some operators to inject the ureter with from ten to fifteen cc. of 95 per cent. carbolic acid solution. Partial nephrectomies are rarely permissible, since microscopic foci exist outside of the area of macroscopic evidence of the disease. In those conditions in which it is impossible to determine the extent of the disease of one or both kidneys, owing to the extent of bladder involvement, both kidneys may be explored through lumbar incisions, in order to determine definitely the condition before operation is undertaken.

Since Spencer Wells, forty years ago, unintentionally operated upon a case of tuberculous peritonitis, many patients have been operated upon, usually with good results, in the serous forms, but not so favorably in the ulcerated form. The operation consists in evacuating the fluid, drying out the abdominal cavity and removing the primary focus.

This form of infection is found at any period

of life. It rarely has its beginning in the peritoneum itself; tuberculosis of the intestinal tract and of the genito-urinary tract, more especially the fallopian tubes, accounts for a considerable share of the cases seen on the operating table. Mayo found that many cases benefited temporarily by drainage, recurred because of failure to remove the focus of the disease. If the affected focus, such as the tube, the appendix, the cecum, or mesenteric glands could be eliminated, the permanent results would be much better. Very rarely a peritonitis may come from a spontaneous perforation of an intestinal ulcer. Tuberculous peritonitis may present many appearances, the same patient frequently exhibiting several types. There may or may not be an exudate. Of the local forms which are more or less suitable for surgical interference may be mentioned the ascitic and the exudative types. The treatment of the ulcerative and the dry fibrous types is non-surgical. In the exudative and ascitic types, the mere evacuation of serum from the cavity has undoubtedly brought about permanent cures in many cases. This may be explained by the formation of adhesions around the focus of infection, and by preventing the continuous reinfection of the peritoneal cavity. Drainage should be avoided in these cases, owing to liability of secondary infection.

In tuberculosis of the intestine, Murphy divides the treatment into two epochs from a curative standpoint as well as a clinical point of view, namely, the pre-tuberculin period and the post-tuberculin period. In tuberculosis of the intestine and tuberculous peritonitis, when the lesion is circumscribed, the primary indication is to resect the tuberculous intestine, but you must have a peritoneum that is free from tuberculosis when you make the attempt. If the peritoneum is infiltrated with tubercles at the time of operation, you will, as a result of the operation, frequently have a fistula, and one that you will be unable to close. In such cases, Koch's old tuberculin is administered in increasing doses, until a uniform reaction of $99.4-10^{\circ}$ to $99.8-10^{\circ}$ F. is obtained the afternoon following the injection. An elevation of temperature just one degree beyond what is normal in that patient is the right reaction. The tuberculin is then pushed until the time comes to make the resection of the bowel on account of intestinal obstruction. Dr. Murphy believes that tuber-

culin is one of the greatest discoveries of the age, and one of the most important factors we have at our command. It has never become a popular agent in the treatment of lesions of the intestine from the fact that it appears to have been such a failure in connection with lesions of the lungs. This failure was not due to lack of potency on the part of tuberculin, but to improper administration from the standpoint of dosage. It is one of those agents that has to be used with proper and intelligent knowledge of its purpose, and when this is mastered, it is a very efficient agent.

During recent years efforts have been made to place the surgical treatment of pulmonary tuberculosis on a scientific basis. The general opinion among surgeons of to-day is that the field is extremely limited. Excision of a portion of the lung for tuberculosis has been of little or no value. Murphy and others endeavored to obtain collapse of a lung and obliteration of tuberculous cavities by the production of artificial pneumothorax by filling the pleura on the affected side with nitrogen gas. These attempts gave no permanent results.

There is still lacking a unanimity of opinion among surgeons regarding the treatment of tubercular adenitis. The ideal treatment is radical extirpation where this can be practiced. Von Bergman's rules for operation still obtain: (1) The disease must be confined to one gland or a few contiguous nodes; (2) there must exist no periadenitis, nor periglandular phlegmon. The cases are divided by him into three clinical groups: Group 1, solid hard glands; Group 2, softened broken-down glands covered by intact skin; Group 3, suppurating glands with sinuses or ulcers.

Group 1. Treatment by ointments and oils has been disappointing; they have no specific value, and the massage employed in the application does harm by dissemination of the disease. The value of fresh air treatment at the seashore or in the mountains is emphasized. Diet is of great importance in these cases, since Heubner and Czerny have shown that alimentary intoxications, as well as improper diet and overfeeding, bring about the so-called status lymphaticus or exudative diathesis of children. There is a hyperplasia of lymphoid tissues and mucous membranes, associated with a heightened susceptibility to infection. Individual metabolism should be studied with a view of arriving at a

proper diet. The Roentgen ray is a most valuable means of treatment, and compares most favorably with operation. Under its influence lymphoid tissue disappears, leaving only stroma.

Group 2. When softened, broken-down glands are incised and curetted, the result is usually a large open wound which heals slowly, leaving an unsightly scar. One of the oldest methods of treating these cases consisted in aspiration of the pus and injection of some remedy, such as arsenic, iodoform oil, naphthol, camphor, carbolic acid, balsam of Peru, and chloride of zinc. None of these remedies is a specific, but all act in such a way as to promote the exudation of lymphocytes, which, aided by their ferments, assist absorption. After aspiration, the author injected a 10 per cent iodoform-glycerin emulsion, with very satisfactory results.

Group 3. Aggressive surgical treatment in this group of cases has proven unsatisfactory. Excision and curettage generally fail to cure. All that is done is to keep the wound clean and employ the general measures before mentioned.

DENTIGEROUS CYSTS—REPORT OF A CASE.*

By C. C. COLEMAN, M. D., Richmond, Va.,
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College of Virginia.

Any tumor arising from the jaw is viewed with more or less suspicion, and while many of these tumors are benign and are amenable to local operation, patients suffering from bony growths in this location have been subjected to unnecessarily extensive operations because a correct diagnosis was not made. The frequency with which sarcoma and carcinoma invade the jaw and the necessity for a more extensive operation in such cases make it highly important to recognize benign tumors when they exist, in order that less radical surgical treatment may be adopted. Tumors arising from embryonic structures which enter into the formation of the teeth, form a fair proportion of the neoplasms that occur about the jaws, being only exceeded in frequency by epulis and carcinoma.¹

Dentigerous cysts are benign tumors of the jaw caused by an overgrowth of part of a tooth follicle in some stage of the development of the tooth. The cells of the primitive epithelial cord which produce the enamel become separated and their later growth forms a cystic

tumor with characteristics depending upon the stage of tooth development. These epithelial enamel cells in the embryonic jaw have been called the "paradental epithelial debris," and their delayed activity seems to be responsible for both the dentigerous cyst and the adamantinoma epithelioma. Inflammation has no part in the etiology of these tumors. Dentigerous cysts usually occur in the young of both sexes after the first dentition, and are exceedingly rare in patients over forty years. While they develop more often about the angle of the lower jaw, there is no reason why a dentigerous cyst should not be in any part of either jaw.²

Usually the first symptom noted by the patient is a smooth, painless swelling on the outer side of the jaw. Occasionally pressure on some nerve by the growing cyst causes neuralgic pain on the side affected. The mucous membrane is never ulcerated, a sinus is rare, and the glands of the neck are not enlarged unless the cyst becomes inflamed. As a rule, they are of small size, but in some cases they form large tumors. The enlargement of the jaw is due not only to expansion and thinning of bone, but also to new bone formation. Pressure over the tumor gives one very typical symptom, the so-called parchment crepitation, a crackling sensation caused by indentation of the thin, bony shell. Should the cyst be located in the upper jaw; it may resemble very closely disease of the antrum. In some cases one or more of the teeth are missing when dentition is completed. The unilocular variety of these cysts is smaller than the multi-locular, which by its enormous size may interfere with the movement of the jaw and cause marked deformity. In the majority of cases the swelling does not encroach upon the alveolar border, but appears to the outer side, and invasion of the lingual side of the jaw by the growing tumor is rare. The sac is mostly composed of connective tissue, but well defined epithelial tissue, and also adamantinoma epithelium may be found.³

The presence of one or more teeth in the cyst cavity is characteristic of a dentigerous cyst. Should the tumor arise in an early stage of the tooth development, the cyst would contain no part of a tooth, though it might be a true dentigerous cyst. The crown is the best developed portion of a tooth, in these cysts, while the root, which is rudimentary, is attached to the cyst wall.

*Read before the Richmond Academy of Medicine and Surgery, February 25, 1913.

The following case was referred to Dr. J. Shelton Horsley by Dr. J. D. Tucker, of Powhatan, Va.: Mrs. H., age sixty-seven, married, mother of seven healthy children—health always good, except some bladder trouble sixteen years ago. This trouble was entirely relieved by medical treatment; no history of other sickness. All the teeth had been removed about fifteen years ago on account of decay and toothache. In February, 1911, the patient noticed a smooth, painless enlargement of the right side of the upper jaw above and external to the alveolar border. This lump did not encroach upon the free border of the alveolar process when first observed. It was not movable, and its most prominent part was opposite to the position of the canine tooth. There was no perceptible growth of the tumor for six months; then it began to enlarge quite rapidly, and caused the patient considerable pain. There was a yellowish discharge from the right nostril during the winter months, which preceded operation. Apart from the trouble in her jaw, she enjoyed excellent health. The patient was well preserved, and her general appearance indicated good health. Examination of the heart, lungs and kidneys showed no disease. A moderate degree of arteriosclerosis not unusual in a patient of this age was found. There was a local bulging of the upper jaw, extending from the nostril and projecting under the right malar bone. The appearance of the tumor was similar to the swelling seen from an abscess about a tooth. The lips could be closed throughout their entire extent. There was no exophthalmos. On examining the mouth no teeth were found and no signs of inflammation or ulceration of the mucous membrane. The tumor seemed to be a smooth, uniform expansion of the upper jaw, most marked under the right malar bone. The alveolar border was not enlarged, nor was the contour of the hard palate affected. Pressure over the tumor gave the characteristic parchment-like crepitation, and the bony shell appeared exceedingly thin. The cervical glands were not palpable.

I operated upon this patient May 1st, 1912, fifteen months after the first appearance of the tumor. Ether was given by the Crile method through rubber tubes passed into the nostrils and the pharynx packed off with sheets. This method of anaesthesia worked well, and at no time was it necessary to interrupt the operation

on account of blood in the larynx. At the same time, the anaesthetist was not hampered by the operator, and could maintain an even anaesthesia. An incision was made through the mucous membrane and the periosteum from near the median line around to the right for three inches. This incision was just above and parallel to the alveolar border. The periosteum was raised upward from the bone over the most prominent portion of the tumor. Here the attempt to elevate the periosteum resulted in perforation of the sac and the escape of a dark, bloody fluid. The periosteum was reflected from the bony wall of the cyst, and sufficient bone was removed with Rongeur forceps to give easy access to the interior of the cavity. The sac was removed without injury, except for the perforation which occurred when first attempting to lift the periosteum. The bony shell was exceedingly thin in places, and part of the floor of the antrum had been destroyed by pressure of the enlarging tumor. This probably accounted for the discharge of pus from the right nostril. After the sac had been removed, the cavity was thoroughly curetted and packed with iodoform gauze. The periosteum was partly

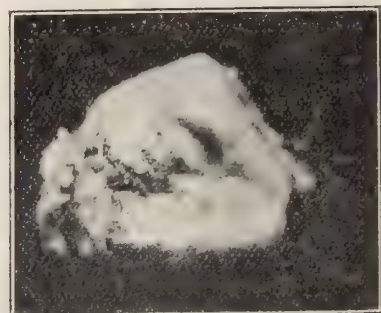


Fig. 1.—Photograph of sac of dentigerous cyst.

closed over the defect. The cyst was of a unicellular type—see figure 1. It was about the size of a small lemon and contained a rudimentary tooth, the root of which was attached to the wall. Figure 2 of specimen shows the tooth in the cyst cavity. I am indebted to Dr. J. Shelton Horsley for the pathological report on this tumor and a description of the micro-photograph—see figures 3 and 4.

The patient recovered promptly from the operation, and her convalescence was very satisfactory. She left the hospital in two weeks in good condition. The cavity was filling nicely and the discharge was slight. There was very

little deformity caused by the removal of part of the alveolar process. I saw the patient in January—seven months after operation—and there was no sign of recurrence.

The chief feature of this case is the advanced age of the patient. Dentigerous cysts are rare after forty years of age. This patient,



Fig. 2.—Dentigerous cyst enlarged. Sac opened to show tooth. Crown is well developed and has appearance of an incisor tooth. The root is attached to cyst wall.

however, was sixty-five years of age before any enlargement was noticed, and the cyst did not begin to grow rapidly until about six months before operation. It must have originated from the tooth germ of one of the incisors or canine teeth. The history and the appearance of the tumor with the parchment-like crepitation and the presence of a tooth in the sac makes the diagnosis of dentigerous cyst fairly certain. Adamantine epithelioma has the same embryologic origin as the dentigerous cyst, but it is slightly malignant. Diagnosis between the two is made by the gross appearance of the tumor after removal and microscopic examination. They are frequently associated, and in such cases the adamantine epithelioma contains small dentigerous cysts, some of which are obliterated by the more solid constituents of the growth.

The local removal of these mildly malignant neoplasms of the bone is all that is required for permanent cure, though the operation for such tumors as adamantine epithelioma, epulis, and some forms of sarcoma, would necessarily be more extensive than that required for the non-infiltrating type, such as the dentigerous cyst.

Dental root cysts are not true tumors, but form from granulation tissue at the root of a diseased tooth, and are, therefore, of inflammatory origin. There is nothing in the age limit to clear up a diagnosis between dentigerous cysts and sarcoma, or carcinoma. Sarcoma occurs in the young when dentigerous cysts are

also more frequent. In carcinoma there is a tendency to early ulceration of the mucous membrane and glandular involvement, neither of which occurs in dentigerous cysts. Carcinoma usually develops after middle life, when dentigerous cysts are more rare, but, as shown in the case I have reported, dentigerous cysts may occur at a very advanced age. Sarcoma does not give parchment-like crepitation, and X-ray examination would not show a tooth in a sarcomatous growth. Epulis generally involves the alveolar border and soon ulcerates. When a cyst is suspected, aspiration of the tumor is a valuable procedure to show the nature of the growth, and ought to be done in all doubtful cases before radical operation is performed. When used in such cases for diagnostic purposes, and positive evidence of malignancy is discovered, operation, if done at all, should be done immediately; otherwise a local condition, with fairly good prognosis, may be converted into hopeless malignancy by traumatic dissemination of the growth. Too much

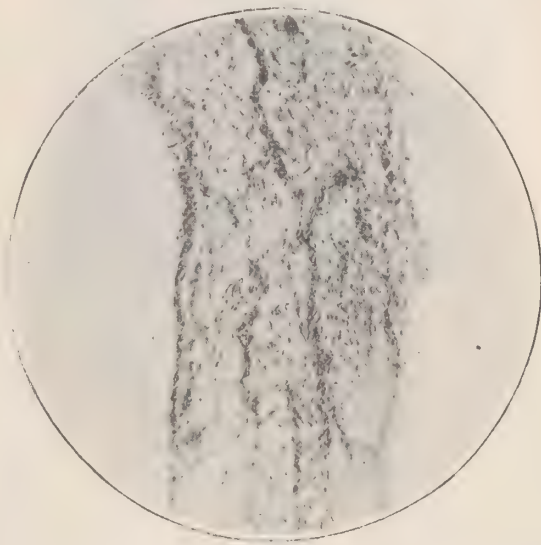


Fig. 3.—Photomicrograph of dentigerous cyst (170 diameters). On left is lining membrane of cyst, which shows evidences of containing epithelial cells resembling adamantine epithelium. It is quite common in benign cysts about the jaw to find the lining membrane macerated and the epithelial lining sometimes completely destroyed. The main body of cyst wall is made up of connective tissue containing many young connective tissue cells. The gross appearance of tumor, the distinct incapsulation, together with microscopic appearance, justify the diagnosis of benign unilocular dentigerous cyst.

attention cannot be given to this point. In operations about the mouth, where hemorrhage may be troublesome, Crile's method of anaesthesia has great advantages. The anaesthetist

is not in the way of the operator; the pharynx is packed off, and blood does not get into the larynx. These two annoying features of such operations, when ether is given in the usual way, are thus eliminated.

A study of the clinical and pathological features of tumors of the jaw must be of great importance in indicating to the surgeon the type of operation to be employed and the results that he can reasonably expect. The diagnosis of the exact nature of a tumor of bones of the face demands the exclusion of malignancy in selecting an operation best suited to the condition.

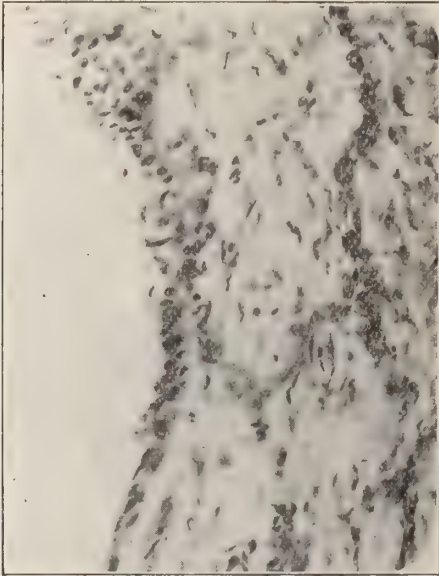


Fig. 4.—Dentigerous cyst. Photomicrograph (350 diameters).

Dentigerous cysts have been attacked in a most radical way, when a simple, easy operation would have been amply sufficient. Bloodgood⁴ reports two cases of dentigerous cyst of the upper jaw operated upon in Halsted's Clinic for sarcoma. Resection of the jaw proved fatal in both cases. Accumulated experience has shown that no form of operation will completely eradicate the most malignant types of either sarcoma or carcinoma of the bone. Thorough local removal does not destroy function, and is at the same time as efficient as the most radical operation. Apart from the deformity caused by a radical operation, such as resection of the jaw, operations of this magnitude are always attended by considerable danger. A method of treatment suitable to the nature of the tumor should be adopted, and this can only

be done by recognizing the various types of these tumors and their degree of malignancy.

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2. Scudder: *Tumors of the Jaws*.—Page 202.
3. Barrie: *Annals of Surgery*—September, 1905.
4. Bloodgood: *American Practice of Surgery*. Volume 6, pages 839-840.

420 West Grace Street.

THE ANATOMICAL AND PATHOLOGICAL CAUSES OF ECTOPIC PREGNANCY.*

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Ectopic pregnancy is a better term than extra-uterine pregnancy, as the former includes all forms of pregnancy not in the uterine cavity.

The study of the subject is a complex one, because, in order to understand why we occasionally meet with an ectopic pregnancy, we must look to our anatomy and physiology for the study of the ovum from its birth, its place of fertilization, its normal migration through the Fallopian tube and into the uterine cavity, and possibly its transmigration of the pelvis to the tube of the opposite side.

Pathologically, we must consider the barriers to its transit through the tube, the foes encountered on its way, the food furnished for its growth, the capacity of its temporary residence for development, and, if it should rupture, the possibility of suitable surroundings for life to full term. We must, finally, ask surgery to furnish a safe delivery for the woman.

It is variously estimated that the ovary at birth contains from ten to seventy thousand ova; these form in the cortex of the ovary, gradually work their way to the surface and are gradually expelled from the ovary by the periodic rupture of the graafian follicle about the time of menstruation, intended for impregnation; if such does not occur, those that escape at this time are destroyed.

If conception takes place, the ovum commences its journey to the uterine cavity, having been grasped by the fimbria ovarica and conveyed to the tube where fertilization usually takes place. On entrance to the tube, it finds the largest portion, the roomy ampulla; the

*Read before the Richmond Academy of Medicine and Surgery, October 14, 1913.

next is a narrower portion called the isthmic, and in the wall of the uterus we have the narrowest—the interstitial portion of the tube. The Fallopian tube has three coats: the external is peritoneal; the middle one is comprised of two layers of muscular tissue, one longitudinal and one circular, the inner coat being mucous lined by ciliated columnal epithelium. The cilia are in patches, and the epithelium coat is arranged in plications or folds, the cilia and plications not being as pronounced in the isthmic and interstitial divisions.

The ovum, having reached the uterine cavity, finds the endometrium prepared for its reception by a premenstrual swelling, having undergone a still further change for the implantation of the future embryo. It is called from now on the decidua of pregnancy. It should be noted that these changes take place whether the pregnancy is intra- or extra-uterine. The product of conception attaches itself to the most available portion of the decidual membrane, "its epiblastic cells eat their way through the epithelium, and the ovum thus arrives in the edematous subepithelial connective tissue stroma, * * * by a process of erosion, burrows into the endometrium—". (De Lee.) The opening through which it entered soon closes; and the ovum grows, at first gaining its nourishment by osmosis and later by the chorion throwing out little blood-vessels, called villi, which attach themselves to the maternal tissues through which the fetus receives its food.

At the same time, the uterus is enlarging through hypertrophy of its muscles, connective tissue and vessels. This enlargement is much greater than is necessary for it merely to contain the impregnated ovum (it occurring also if pregnancy is extra-uterine), the growth continuing to the fourth month. The enlargement of the uterus in the early months of pregnancy is therefore physiological, not mechanical.

If the development of the ovum and its passages were always normal and diseases did not occur, there would not be need for further study of the early weeks of pregnancy. Unfortunately such is not the case, and we must continue our study in the realm of pathology to understand the arrest of the impregnated ovum before it reaches the uterine cavity, the condition being known as ectopic pregnancy.

Ectopic pregnancy is classified according to its location as—(1) Tubal (a) interstitial; (b) isthmic; (c) ampullar; (d) fimbriated. (2)

Secondary abdominal. (3) Ovarian. (4) Primary abdominal. Tubal pregnancy, being the most frequent of the extra-uterine pregnancies, will be considered first, and as most of its divisions give the same symptoms, run the same course and terminate in the same manner, they will be considered conjointly, attention being called, as I go on, to the variations dependent on locality.

Having reviewed the normal course of an ovum, we will look for conditions that will interfere with this, and we find that they must be extra-tubal and intra-tubal. Any condition which will diminish the caliber of the tube by pressure from without will be a predisposing, if not an actual, cause of arrest of the progress of the ovum, e. g., pelvic tumors or adhesions, the latter often producing kinks in, or doubling of, the tube on itself.

The intra-tubal causes are more numerous,—the ovum may possibly have been fertilized in the fimbria ovarica and grown too much to pass through the lumen of the tube; or it might be uniovular twins. The tube itself is often the seat of a puerperal or gonorrheal chronic salpingitis, causing destruction of the cilia, interfering with its propulsive powers, producing adhesions of the plicae of the mucosa, or forming kinks in, or twisting of, the tube. The lumen of the tube is not generally obliterated, as the spermatozoa find their way through, yet it is possible for fertilization to occur in a tube whose caliber is entirely obliterated, accomplished by the transmigration of the pelvis by the ovum.

We sometimes find diverticula of the tube into which the ovum may lodge and grow, and again we may find an accessory tube, or an accessory ostium ending in cul-de-sac. All these conditions act as predisposing causes to ectopic gestation, yet many women have these conditions and do not have extra-uterine pregnancy. A tube may retain its infantile tortuosity, and be a means of obstructing progress. More than two-thirds of the cases give a history of pelvic inflammation and gonorrhea as the exciting cause.

The fertilized ovum having been arrested in the tube, attaches itself to the mucosa, which is very thin, so that in burrowing for a nest it soon reaches the muscular coat, which hypertrophies very little as compared to the uterine muscle. The chorion develops and throws out its villi for nutrition, weakening the tube wall as they burrow into it, decidual action not be-

ing sufficient to protect the maternal tissues against the destructive action of the foetal cells. Add to this the growth of the ovum which presses against the tube, and rupture of the sac takes place, generally about the sixth or eighth week, followed by expulsion of the foetus into the peritoneal cavity, accompanied by a more or less severe hemorrhage. It is possible that a rupture may not occur, but hemorrhage into the lumen of the tube may separate the ovum and expel it through the fimbriated extremity of the tube, producing tubal abortion.

Tubal gestation usually ruptures at the point of original insertion of the ovum. This point more frequently is situated at the upper posterior border of the tube, the foetus escaping into the abdominal cavity. If it retains its connection with the placenta and the placenta remains sufficiently attached, the foetus may grow to maturity, and we have a secondary abdominal pregnancy. The sac for the foetus is formed by the adjacent organs, a lamellated fibrin glueing them together. The placenta continues to grow and attaches itself to anything within reach. If the foetus lives to maturity, false labor sets in, the decidua is discharged from the uterus, and the foetus dies and becomes mummified, saponified or calcified. The sac containing the dead foetus being in proximity to the intestines, may become infected and rupture into the peritoneal cavity or some hollow viscus, as the bladder or rectum, or it may remain quiescent during the rest of the life of the woman. I saw a disintegrated foetus removed through the rectum, bone by bone, twenty-five years ago by Dr. Hunter McGuire.

If a tubal pregnancy ruptures in the lowest portion of the tube, it will form an extra-peritoneal hematocele by separating the layers of the broad ligament and pelvic fascia, becoming a broad-ligament pregnancy.

A tubal pregnancy may occur at the isthmic portion of the tube; the caliber being smaller than in the ampulla; it will not have as much room to grow and will rupture sooner.

The narrowest portion of the tube is the interstitial, which is in the wall of the uterus, and may possibly rupture into its cavity for development, and birth take place as in normal labor, or the foetus may continue in the wall of the uterus as an angular pregnancy. These are not the usual terminations; as in the other divisions of tubal pregnancy the peritoneal cavity is the

preferred site, but the possibility of entering the broad ligament must not be overlooked.

Ovarian pregnancy occurs while the ovum is still in the Graafian follicle. The sac is pedunculated and consists of ovarian tissue, and none from the tube or the fimbria ovarica. This form is very rare—not more than thirty authentic cases being reported.

Primary abdominal pregnancy is possible, and for it to occur the ovum must be fertilized while it is on the peritoneum. Hirst (Text-book, 1912) reports one; Galabin (Text-book, 1910), reports one and mentions several others, and remarks, "If an ovum damaged by separation can attach itself to the peritoneum and live, it seems more likely that a fresh one can," and, continuing, quotes Teacher as saying "the ovum is capable of imbedding itself in any patch of connective tissue which is sufficiently large to accommodate it and sufficiently vascular to meet the demands of its nutrition." Primary abdominal pregnancy may occur through a fistulous opening after a hysterectomy (Koberle, quoted by Hirst).

In conclusion, I wish to remind you that intra-uterine pregnancy may occur simultaneously with ectopic; nor must we forget that we can have repeated tubal pregnancies, single, twin or triplet, in the same tube, in the tube of the opposite side, or in both tubes and intra-uterine at the same time.†

† E. McDonald and W. A. Krieger, *American Journal Obstet.*, Oct. 1913.
401 North Allen Avenue.

Book Announcements and Reviews

The Semi-Monthly will be glad to receive new publications for acknowledgment in these columns, though it recognizes no obligation to review them all. As space permits, we will aim to review those publications which would seem to require more than passing notice.

Anatomy, Descriptive and Applied. By HENRY GRAY, F. R. S., Fellow of the Royal College of Surgeons; Lecturer on Anatomy at St. George's Hospital Medical School, London. New (American) edition, thoroughly revised and re-edited, with the ordinary terminology followed by the basic anatomical nomenclature, by Edward Anthony Spitzka, M. D., Director of the Daniel Baugh Institute of Anatomy and Professor of General Anatomy in the Jefferson Medical College of Philadelphia. Imperial octavo, 1502 pages, with 1225 large and elaborate engravings. Cloth, \$6.00 net; leather, \$7.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1913.

In issuing this latest revision of Gray's Anatomy—without doubt the best known work in all

medical literature,—the editor has, besides presenting the latest additions to anatomical knowledge, carefully reviewed each line of the text for the purpose of clarifying any possible obscurity. The Basle Anatomical Nomenclature, in italics, has been introduced in parentheses, following the ordinary terminology, except where the two nomenclatures are identical. Numerous illustrations have been added from original drawings and preparations, and some from standard works. Colors are profuse. All of the many excellent features of the original work and its many revisions—the engraving of the names of the parts directly on the illustrations, etc.—have been carefully preserved, and it is possibly saying not too much to state that Gray's Anatomy, as it now appears, is beyond question the greatest single volume ever published on the subject.

Golden Rules of Surgery. By AUGUSTUS CHARLES BERNAYS, A. M., M. D., Hdldg., M. C. R. S., Eng. For twenty years Professor of Anatomy and Surgery in St. Louis, Mo. Second Edition, Revised and Rewritten by William Thomas Coughlin, M. D., Assistant Professor Surgery, Chief of Clinic, St. Louis University Medical School. Volume I, Golden Rule Series. St. Louis. C. V. Mosby Company, 1913. 281 pages; 12mo. Cloth. Price, \$2.25.

The volume in hand, in twenty-five main divisions, states many of the fundamental truths of surgery in a terse manner which attracts the attention and impresses suggestions and advice upon the reader. It is especially intended for students, general practitioners, and beginners in surgery, and gives the sum and substance of many long chapters of text books. A thorough index adds to its value.

Nervous and Mental Diseases. For Students and Practitioners. By CHARLES S. POTTS, M. D., Professor of Neurology in the Medico-Chirurgical College of Philadelphia. New (third) edition, enlarged and thoroughly revised. In one 12mo. volume of 610 pages, with 141 engravings and 6 full-page plates. Price, cloth, \$2.75 net. Lea & Febiger, Publishers, Philadelphia and New York, 1913.

This is a clearly and concisely written manual of medium size, designed as a guide on nervous and mental diseases for the student and general practitioner. In this revision, short descriptions have been added of tic, myotonic atrophica, progressive lenticular degeneration, and dysbasia lorditica deformans. The chapter on general symptomatology and methods of examination has been amplified. Dementia paralytica is described with diseases of the brain and cord.

The latest views as to the importance of examination of the cerebrospinal fluid and determination of the existence of the Wassermann reaction in diagnosis has been incorporated. The section on mental diseases is brief, although reference is made in hysteria to the theories of Freud. The illustrations are good, and altogether the book is quite satisfactory for the purposes intended.

The Practical Medicine Series. Comprising 10 Volumes of the Year's Progress in Medicine and Surgery. Under the General Editorial Charge of CHARLES L. MIX, A. M., M. D., Professor Physical Diagnosis in Northwestern University Medical School. **Volume IV, Gynecology.** Edited by EMILIUS C. DUDLEY, A. M., M. D., Professor Gynecology, Northwestern University Medical School, and HERBERT M. STOWE, M. D., Associate in Gynecology, Northwestern University Medical School. 230 pages. Price, \$1.35. **Volume V, Pediatrics.** Edited by ISAAC A. ABT, M. D., Professor Pediatrics, Northwestern University Medical School, and Orthopedic Surgery. Edited by JOHN RIDLON, A. M., M. D., Professor Orthopedic Surgery, Rush Medical College, with collaboration of CHARLES A. PARKER, M. D. 235 pages. Price, \$1.35. **Volume VI, General Medicine.** Edited by FRANK BILLINGS, M. S., M. D., Head of Medical Department and Dean of Faculty of Rush Medical College, and J. H. SALISBURY, A. M., M. D., Professor Medicine, Chicago Clinical School. 356 pages. Price, \$1.50. **Volume VII, Obstetrics.** Edited by JOSEPH B. DeLEE, A. M., M. D., Professor Obstetrics, Northwestern University Medical School, with collaboration of HERBERT M. STOWE, M. D. 232 pages. Price, \$1.35. Series 1913. Chicago. The Year Book Publishers. Cloth. 12mo. Series of 10 volumes, \$10.00.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M. D., Professor Therapeutics and Materia Medica, Jefferson Medical College. Assisted by LEIGHTON F. APPLEMAN, M. D., Instructor in Therapeutics, Jefferson Medical College. Volume XV, No. 3, September 1, 1913. 310 pages. Illustrated. Lea & Febiger, Philadelphia and New York. 8vo. Paper. Subscription price, \$6.00 per annum.

Pathology, General and Special. A Manual for Students and Practitioners. By JOHN STENHOUSE, M. A., B. Sc. (Edin.) M. B. (Tor.), formerly Demonstrator of Pathology, University of Toronto, Canada. Second Edition, Revised and Enlarged, including Selected List of State Board Examination Questions. 12mo.; 278 pages, illustrated. Cloth, \$1.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1913.

The Surgical Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. October, 1913. Volume II, Number 5. Published Bi-Monthly by W. B. Saunders Company, Philadelphia and London. 8vo.; 174 pages. Illustrated. Price, per year: Paper, \$8.00; Cloth, \$12.00.

Editorial.

The Medical Society of Virginia.

The last annual meeting of the State Society held in Lynchburg, was a success. What do we mean by success? The attendance of 343 members was large so far as the average number at such meetings goes; the hotel accommodations good; the officers alert; the number of new fellows elected large; the fairness, firmness and courtesy of the presiding officer conspicuously marked; and the papers read up to the average.

Could it have been better? Most all things human are capable of some improvement. Out of a total membership of nearly 1,800, a little over one-sixth registered, in spite of the fact that the place of meeting was very centrally located and accessible by several different railroads. Here is a lack of interest and apathy which needs overcoming and stimulating.

A reference to the printed program, sent out some time in advance of the meeting, shows that there were six speakers—non-members—outside of the State, twenty-eight essayists connected with one or the other of our two medical colleges, quite a number of individual specialists along various lines, while there were relatively few papers by the untitled practitioner, who by large odds makes up the membership. The man who is in some special field of medicine or surgery is best fitted to present the newest and most perfected means of combating disease, but often a careful reading between the lines will disclose an open or thinly veiled allusion to some particular form or method of treatment which can be done only by the speaker. Such simple procedures as taking out the tonsil, curetting the womb, delivering a woman of a baby, or ailments that we have been quietly and successfully attending for many years past, are hedged about with so many possible pitfalls and dangers, that we have come to one of two conclusions, namely, to exclaim with the Psalmist: "goodness and mercy have followed us all the days of our lives," or we have been obliged to do our duty and have learned like the "expert" from the common source of experience.

We want the practical man in the large cities, with nurses and hospitals at his command, to contribute; we want the hard-working man in the small towns and villages to furnish his quota,

but above all we want the observant man in the country districts, who is far away from conveniences, at times even a consultation, to tell us how he meets emergencies, and how self-reliance calls for prompt response on his part. Such a paper benefits himself, overcomes his natural diffidence and adds a great deal to our store of medical knowledge. Some unique case fully described, or a reliable new use of some well-known drug is worth a ton of theory.

In old times, always the most interesting day of the session was the election of officers when every man had a vote and a say. We wanted some excitement and diversion—not so much instruction—but that has now been done away with in order that the time be given to "scientific" things entirely. So we would urge, as one of the best means of stimulating interest, to call out the rank and file, and, by all means, to induce the country doctor to do more for and in the Society. M. D. H.

Catawba Sanatorium and Tuberculosis in Virginia.

The new infirmary at Catawba Sanatorium, Va., is now ready, and directions were given the middle of this month for its opening. Connected with the dining hall by a covered way, the infirmary provides small, separate rooms for forty patients, and will care for those whose condition will not permit them to live in the open air during the winter months, and for patients who may become sick while taking treatment.

In spite of this new addition, there are more than enough patients on the waiting list to fill every vacant bed in the Sanatorium, which is conclusive evidence of the fact that the State has not yet provided adequate accommodations for its consumptives. The State Health Department announces that there is need for a larger number of private sanatoria in Virginia for both advanced and incipient cases. It also argues the necessity of a sanatorium for colored people who have tuberculosis. The tuberculosis rate among negroes in this State is 256 per 100,000, and with the disease spreading among them, something should be done towards securing a sanatorium for the colored tuberculous.

The Southampton County (Va.) Medical Society

Held the first regular meeting since its organization in Courtland, November 4th, with an

attendance of two-thirds of its members. Drs. W. B. Barham and E. F. Reese were in their places as president and secretary, respectively. A paper on La Grippe, the subject for general discussion, was presented by Dr. J. C. Rawls, of Franklin, and was freely discussed. Dr. Southgate Leigh, ex-president of the Medical Society of Virginia, was present by invitation, and talked on the relation of the county medical societies to the State Society, in its recent reorganization plan. Drs. Leigh, Norfolk, W. H. L. Goodman, Franklin, and J. H. M. Sykes, Boykins, were elected honorary members, and six active members were added to the roll.

Franklin was selected for the next place of meeting, to be held the first Tuesday in February, 1914. The subject for discussion at that time will be Pneumonia, and the papers read will be on the Etiology, Pathology and Diagnosis of Pneumonia, by Dr. J. W. Smith, Branchville, and on the Prognosis and Treatment of the disease, by Dr. R. H. Cobb, Franklin.

Better Vital Statistics Registration Urged In Virginia.

Letters have been sent every physician, clergyman, local registrar and undertaker in this State, by Dr. William J. Harris, Director of the Bureau of Census of the United States, urging a better registration of Vital Statistics. The returns for the first calendar year in this State have been such that Virginia is to be included in the registration area of the United States for the year 1913. In spite of this fact, however, a number of births and deaths remain unrecorded in certain counties, and Dr. Harris is appealing to physicians throughout the State to have all births and deaths which have not been notified placed on the official records at once. As our State has adopted this registration plan, we should each do our part in upholding it, and especially as it may mean much to some of our patients and their descendants in the future.

The New York Committee on Prevention of Blindness

Deserve credit for the effort they are making to prevent the tragic cases of unnecessary blindness and death resulting from wood alcohol poisoning. While they realize that a certain amount

of legislation is necessary for the solution of this problem, they are also endeavoring to educate the masses as to its dangers, by the issuance of illustrated folders. They insist that wood alcohol should be supplanted by denatured alcohol in varnish, as the latter is absolutely safe for industrial purposes and has the added advantage of being cheaper.

It is reported that in New York City alone, in 1912, twelve persons were blinded and three killed by wood alcohol. This alone should be sufficient argument to demand that the various State legislatures pass laws that wood alcohol when sold should be labeled "Poison—May cause blindness or death if inhaled," as the words wood alcohol would signify no special danger to the uninformed.

Norfolk County (Va.) Medical Society.

At a regular monthly meeting of the Society, in Norfolk, on the evening of November 3, the following officers were elected to serve during the ensuing year: President, Dr. E. C. S. Taliaferro, Norfolk; vice-president, Dr. E. A. Hatton, Portsmouth; and secretary-treasurer, Dr. W. P. McDowell, Norfolk.

Free Radium Clinics.

It was announced at the American Mining Congress recently held in Philadelphia, will be established in the near future at Memorial Hospital, New York City, and at Dr. Howard A. Kelly's Hospital, Baltimore. It is reported that at these clinics cancer and kindred diseases which have shown improvement under radium treatment will be treated free.

The Princess Anne County (Va.) Medical Society

Was organized about the middle of October, and the following officers were elected: President, Dr. Thos. B. Luxford, Princess Anne; vice-presidents, Drs. Thos. L. Brooks, Oceana and N. A. Nicholson, Creeds; and secretary-treasurer, Dr. A. D. Tyree.

U. S. Public Health Personals of Interest in Virginia.

Surgeon C. P. Wertenbaker was granted 7 days' leave of absence from October 31, 1913.

Surgeon H. S. Cumming, on October 22, was directed to proceed at the earliest convenient time to Norfolk, Va., for the purpose of making

an inspection and report upon the availability of the United States Naval vessel Newark as a floating quarantine station at Providence, R. I.

Surgeon L. L. Lumsden was directed, November 10, on request of State and local authorities, to undertake a systematic investigation of typhoid fever in Berkeley County, West Virginia. He will be assisted by W. E. Glanville, an assistant surgeon in the service.

The Hodgkins Prize of \$1,500,

Offered by the Smithsonian Institute, in connection with the International Congress on Tuberculosis, held in Washington in 1908, for the best treatise on the Relation of Atmospheric Air to Tuberculosis, has been divided equally between Dr. Guy Hinsdale, Hot Springs, Va., and Dr. S. Adolphus Knopf, of New York City.

The Medical Examining Board of Virginia

Will hold its next session in Richmond, December 16-19, 1913, to examine applicants to practice medicine in all of its branches. The president, Dr. R. S. Martin, Stuart, or secretary-treasurer, Dr. Herbert Old, Norfolk, will furnish any desired information.

Louisa County (Va.) Medical Society.

The above Society was recently organized, and Drs. Eugene Pendleton, of Cuckoo, and Thos. M. Taylor, of Louisa, were elected president and secretary-treasurer, respectively.

Handsome Gift to Medical School.

The Johns Hopkins University Medical School was recently voted \$1,500,000 by the Rockefeller General Education Board of New York, the fund to be known as the "William H. Welch Endowment for Clinical Education and Research." The income from this amount is to be used to pay instructors such salaries as will make them independent of receipts from practice, so that they may, where required, give their whole time to the school.

The Washington Society of Nervous and Mental Diseases

Have inaugurated their seventh session by re-electing last year's officers as follows: President, Dr. Tom A. Williams; vice-president, Dr. W. M. Barton, and secretary, Dr. W. M. Hough.

The Society has a limited membership but welcomes physicians and surgeons interested in Neurology and Psychiatry. It meets monthly on

the third Thursday, at the Cosmos Club or a member's residence.

Dr. Woodruff an Editor on American Medicine.

It was announced in October number of *American Medicine*, that arrangements had been completed whereby Dr. Charles E. Woodruff, Lt.-Colonel, U. S. Army Medical Department (retired), will be a co-editor of that journal.

Honor for Richmond Doctor.

We note from the daily bulletin of the Clinical Congress of Surgeons of North America, which held its fourth annual session in Chicago, the middle of November, that Dr. J. Shelton Horsley, of this city, was among those invited to give a special demonstration at Rush Medical College. The subject of his demonstration was Arterial Suture.

The Southside Virginia Medical Association

Will hold its next quarterly meeting in Kenbridge, December 9, Dr. Bernard Barrow, of Barrows Store, presiding. Dr. E. F. Reese, of Courtland, is secretary.

The Innocence of the Buffalo Gnat,

As a carrier of pellagra, has been declared by Dr. J. F. Siler, of the Thompson-McFadden Pellagra Commission, who, with a government entomologist and Dr. Sambon, the originator of the insect theory, has just returned from an investigation tour in Panama. Though they found much pellagra, they were unable to trace it to the gnat.

Glee Club at Medical College of Virginia.

The Medical College of Virginia has a Glee Club which sang at the formal opening of the College, a few weeks ago. They also expect to give an entertainment during the winter. As far as we are informed, this is the first glee club ever organized by a medical institution.

Comparison of Statistics of Navies of Japan and United States.

The United States Naval Medical Bulletin for October gives a comparison of statistics of the Navies of Japan and the United States for 1910, from which we note that the mean daily force at that time in the U. S. Navy was 58,340 as compared with 44,323 in the Japanese Navy. While the number of deaths from all causes in our Navy is slightly in excess, the Japanese Navy reported a rate of 4.78 per 1,000 for ty-

phoid fever and 6.59 per 1,000 for tuberculosis against a rate of 3.76 and 5.94 per 1,000 for the same diseases in our Navy. The United States reported 195.41 per 1,000 of venereal diseases against 128.83 per 1,000 in the Japanese Navy. The Japanese report diseases of the eye and of the skin both in more than double the ratio reported in the Navy of the United States.

Red Cross Christmas Seals.

The State Antituberculosis Association has announced that the Red Cross Seals will be on sale throughout Virginia by Thanksgiving Day. The seal for this year is said to be of an attractive design, and will be sold at a penny apiece as in the past. The proceeds will be devoted to the fight against consumption, 50 per cent. of the amount made to be used for relief work in the localities where the seals are sold. It is hoped that \$10,000 may be raised in Virginia this year. Charitable organizations that wish to cooperate in this work in territory not already occupied, may secure assignments from headquarters of the Association, 1110 Capitol Street; this city.

Lt. C. C. Hillman, U. S. A.,

Is on detached service from his station, Ft. Myer, Va., to accompany the 15th Cavalry to Ft. Bliss, Texas.

High Homicide Rate in Virginia Explained.

Vital statistics reports arranged by the State Board of Health show that, for the year recorded, there were 245 homicides in this State. In 39 of the 100 counties in Virginia, no murders occurred during the year, and in only 22 of the remaining counties were there three or more. Two cities reported 48 homicides, or almost 20 per cent. of the total number for the State. The Board of Health states that the high rate is not due to excessive lawlessness among all classes, but can be traced to congestion or to specified local conditions that will be readily understood upon analysis.

Mississippi Valley Medical Association.

At the meeting of the Association held in New Orleans, La., October 23-25th, the following officers were elected for the ensuing year: President, Dr. D'Orsay Hecht, Chicago; vice-presidents, Drs. W. W. Butterworth, New Orleans, and Willard J. Stone, Toledo, O.; secretary, Dr.

Henry Enos Tuley, Louisville, Ky., and treasurer, Dr. S. C. Stanton, Chicago, both of the latter being re-elected.

Flaw in Pure Food Law.

State Pure Food Commissioners and officials of the Department of Agriculture in recent conference decided that the Federal pure food law was inadequate, and a committee was appointed to urge Congress to pass a new measure providing a law to fix standards for all foods and drugs.

The Leonard Medical College,

Located at Raleigh, N. C., a well-known medical college for colored people, suffered a heavy loss by fire early in November, when its chemical and biological laboratories were destroyed.

Dr. J. Whitridge Williams,

Of Baltimore, is president of the American Association for the Study and Prevention of Infant Mortality, for next year.

Birth Registration in Indiana.

The Indiana State Board of Health has adopted a plan to secure more accurate birth reports by seeking the co-operation of the women. The Board has a traveling exhibit which goes from town to town and spends a week in each place. In the exhibit hall, twice daily, lectures are given which are illustrated with still and motion pictures.

A Mother's Baby Book is also being prepared by the Board of Health. This and a few remarks with regard to registration will be sent every mother when her first child is born.

A Chance for Good Health Work.

Ten of the ninety-eight counties in North Carolina have health officers who devote their entire time to health work, being paid salaries of from \$1,800 to \$2,500 annually for their services.

Diploma to be Required of Midwives in New York City.

The Board of Health in October adopted a resolution to be effective on and after the first day of January, that all prospective midwives shall present diplomas showing that they are graduates of schools for midwives registered by the Board of Health of New York City as maintaining the required standard, before permits to practice midwifery shall be issued them.

The American College of Surgeons

Was formally organized and held its first convocation in Chicago, November 13, at which time about 1,000 fellows were admitted to membership. This College is organized along the lines of the Royal College of Surgeons of England. It stands first for character and high ethical conduct, and lays great stress upon scientific and professional attainments. It has been organized largely to elevate surgery and counteract the tendency toward giving commissions and fee splitting that is bringing such disgrace upon medicine and surgery in some sections of the United States. Fortunately, Virginia is comparatively free from this latter evil.

The College consists of a Board of Governors, who are chosen from the original founders, and of fellows, who have been subsequently added to the membership. It is governed by a Board of Regents of twelve men elected from the Governors. Dr. J. M. T. Finney, of Baltimore, is the president, and among the regents are Drs. Crile, of Cleveland, Chas. Mayo, of Rochester, Minn.; John B. Murphy, of Chicago; Franklin Martin, of Chicago; Brewer, of New York; Cotton, of Boston; Matas, of New Orleans, and several surgeons from Canada.

The American College of Surgeons embraces members of the profession in the United States and Canada, and includes those who practice general surgery or its specialties, as diseases of the eye, ear, nose and throat, gynecology and obstetrics. There are about twenty fellows from Virginia, and six or seven of these are on the Board of Governors. Dr. Franklin H. Martin, of Chicago, is secretary.

The Southern Homeopathic Association,

At its meeting in Atlanta, Ga., this month elected the following officers: President, Dr. H. E. Koons, Danville, Va.; vice-presidents, Drs. S. L. Stone, Atlanta, and Lee Norman, Louisville, Ky.; treasurer, Dr. H. R. Stout, Jacksonville, Fla., and necrologist, Dr. A. L. Monroe, Miami, Fla. The next place of meeting will be selected later by a committee.

The Alvarenga Prize.

The College of Physicians, of Philadelphia, announces that the next award of this prize of \$180, will be made July 14, 1914, provided an essay deemed worthy of the prize shall have

been offered. The essays must be received on or before May 1, 1914, by the secretary of the College, who will furnish further particulars.

The American Journal of Surgery,

Of New York City, in January, will present an issue devoted exclusively to Fractures and their treatment, to be known as the *Special Fracture Number*. It will include papers by a number of prominent specialists on the subject.

Wanted—An assistant in general practice work.

Apply to A. C. Ray, M. D., Ashland, Va.—
(Adv.)

Obituary Record.

Dr. Robert L. Edwards.

It is with regret we note the sudden death of Dr. Edwards at his home in this city, November 12th. He had been in apparently good health, but was stricken shortly after retiring, and died before a doctor could reach him.

He was born in Darlington, S. C., about forty-two years ago, and made his home in that State until a few years ago, when he moved to Richmond. Here he devoted his work to the eye, ear, nose and throat specialties, and won the affection and regard of all who knew him. He graduated in medicine from the New York University in 1894, and was for a time assistant in surgery at Cornell University, and later clinical assistant at the New York Eye and Ear Infirmary. The Richmond Academy of Medicine and Surgery, of which he was a member, held a called meeting at which they expressed their appreciation of Dr. Edwards and sympathy for his family. He is survived by his wife and two children as well as by a brother, Dr. George B. Edwards, of Darlington.

Dr. Charles M. Rees,

Of Charleston, S. C., died in that city, November 15th, aged fifty-two years. He was a graduate of the Medical College of the State of South Carolina in 1887, and was a man of much prominence in his State, being a professor in the above named institution, an ex-president of the State Medical Association, and a member of numerous other societies, including the Tri-State Association of the Carolinas and Virginia.

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BRAIN INJURIES.*

By E. B. CLAYBROOK, M. D., Cumberland, Md.

In offering this subject for discussion today, I am doing so from the standpoint of brain injury, rather than fractures of the skull, because it seems to me that, during the past decade, we have had a tendency to emphasize fractures so strongly, that the average surgeon has paid too much attention to the bony envelope, at the expense of the cranial contents. So many cases with slight depression, or none, and no other symptoms of moment, have been trephined, and so many with grave lesions, but no sign of fracture, or localizing symptoms, have been allowed to pass to their reward, with no operation, that it seems high time to discuss the matter from the vital viewpoint of the injury to the soft parts.

In this connection, it will do us no harm if we roughly review the normal anatomic and physiological phases of the matter, as well as the changes that take place when injury has been inflicted.

We have, then, to deal with a large mass of nervous tissue, the brain, which is incompressible, floating in the cerebro-spinal fluid, which is also incompressible, and enclosed in a firm bony envelope, which allows of no distention.

To quote Alexander, "While any other tissue in the body may be compressed with comparative impunity, that of nerve is compressed on at the cost of immediate loss of function, with slow restoration of function if pressure be relieved, and of atrophy without regeneration if pressure be not relieved." In brain in-

juries, we have four causes of death; cerebral shock, cerebral contusion and laceration, cerebral compression, and infection; and the greatest of them all is compression.

Nature has so arranged that, under ordinary conditions, we have a fair safety valve for the regulation of cerebral pressure, in the readiness with which the cerebro-spinal fluid escapes from the skull, through its direct passage into the venous sinuses, and through the Pacchionian bodies into the veins of the diploe. When the jugulars are obstructed, the posterior condyloid veins and those of the orbit will take care of all the back pressure. But when the compressing force is raised above the venous pressure, so as to flatten out these avenues of escape, and the capillaries leading to them become first engorged, and then flattened out, we have a different condition to face.

The cerebro-spinal fluid, then, cannot escape; the arteries continue to pour in their supply until the pressure within the skull rises to the height of the blood pressure. Then acute cerebral pressure anemia supervenes, with its disastrous effects upon the vital centers.

The vagus center is usually the most easily affected, and responds before the stage of anemia is reached, and we get the slow regular pulse, with a slight drop in blood pressure. The compression, indeed, may advance no further, and we may see the symptoms gradually subside, and the patient go on to recovery without operative interference.

But if the pressure within the skull continues to rise to the stage of beginning cerebral anemia, the respiratory center becomes distressed, and a stimulus is sent to the vaso-motor center for more blood. This center responds with a raised blood pressure, and all goes well until the compressing force again rises to this increased blood pressure, when the same cycle again occurs.

*Read by the author, an invited guest, before the sixth annual meeting of the Association of Surgeons of the Norfolk and Western Railway, at Old Point, Va., October 2-3, 1913.

This vicious circle or "life and death struggle between the compressing force and the vaso-motor center," as it has been termed, is kept up until the center is exhausted, and responds no further, when we have a rapid fall of blood pressure, and death ensues.

In compression, of course, the effects are first manifested upon the venous circulation for obvious reasons, and the blocking gradually extends back to the arteries.

The brain tissue is first stimulated, giving us over-activity, excitement, and restlessness, followed, as the pressure increases, by paralysis, with somnolence, unconsciousness, stupor, coma, etc.

This pressure paralysis, according to Huguenin, affects the cortical centers first, and extends downward, those of medulla being affected last. When they begin to show the effects of compression by slowed pulse, increased blood pressure, and changes in the rate, rhythm, and character of the respiration, the danger is becoming grave.

It has been estimated that the brain will withstand a compression of six per cent. of its volume before there is enough turgescence of the veins to be noticed in the eye-ground, and that it can safely withstand a compression of one-sixth of its volume, without serious consequence, if the force is not too rapidly or too suddenly applied.

Now, in patients coming to us as surgeons, with a history of a blow upon the head, we are often the arbiters of their fate by the attitude taken in the case at hand. What treatment shall we accord the individual patient?

I am convinced that too many *emergency* trephinations have been done in cases with well defined fracture of the skull, especially of the vault, without proper preparation, without proper surroundings and without proper assistance. The fracture case is seldom a rush emergency case for operation, even when marked depression exists, as the danger from the depression *per se* is ultimate, and not immediate; it seldom can be enough to cause dangerous compression. The wound, if there is one, must be dressed, and the patient moved to a hospital and carefully watched, the work being done, if necessary, in the proper surroundings and with the proper assistance. This tendency to operate early and often upon fractures of the vault has been fostered by the stand of prominent surgeons in this work, who have impressed upon the profession that all depressed fractures, if not all

fractures, should be trephined, and trephined early.

This procedure may possibly be safe in their hands, but I do not believe for an instant that it is necessary, and I know that it is baneful doctrine to be spread broadcast among the profession.

In giving the causes of death, I have displaced the term concussion by the term cerebral shock, because it seems to me that it better meets conditions. The symptoms are those of acute shock in general, and supervene at once, often being severe enough to kill immediately. If death does not occur, the patient gradually recovers without further trouble, mentally or physically.

If Crile's theory of shock is correct, this condition, with its symptom complex, is just what we should expect from the direct application of violence to the cerebral tissue. This, of course, may or may not be accompanied by demonstrable contusion, or the symptoms of the one may merge into the other. In contusion the recovery is not so rapid, the symptoms are of longer duration and often accompanied by high temperature, following the impact in a few hours, as a rule, and far too early for infection to have any part in it. The temperature mounts higher and higher, and while there may be compression associated with it, as shown by increased blood pressure, the relief of pressure does no good, and the patient dies in spite of all we may do for him. If the contusion is not so severe, we have a delayed return to normal, with the patient unconscious for weeks at times, but with vital centers working well, and eventual clearing up of all symptoms.

Now, what causes this high temperature in these severe cases? I have seen a number of them, and have been at a loss to decide, except that I have ascribed it to the contusion, and let it go at that. Some recent experimental work by Barbour, published in the *Archives of Experimental Pathology and Pharmacology*, seems to me to have a direct bearing upon this question.

He found that, by stimulation of the region of the corpora striata, in the location used in the heat puncture experiments by Ott and others, he could raise the body temperature above 107, or lower it to below 92 at will. Now, it seems to me that injury in this same area might well develop this response, as well as experimental stimulation by the methods used.

It seems best to refrain from operation in

these cases, unless pressure symptoms are urgent, for, in the cases with mounting temperature, they all die, in spite of all we can do, and in the milder cases they all recover, with brain intact, as far as I have been able to judge. I have never been able to convince myself that any operation that I have done, or seen done, has influenced the case one way or the other.

The conditions are far different, however, in the cases showing signs of compression. Here we need prompt, efficient action if we are to save life, and here is where too little operative work has been done. These cases may show badly fractured skulls, or, most often, no fracture is demonstrable, though fracture through the base probably exists. The eye-ground and the vagus center are the outer guards, and are the first to let us know what is going on inside the skull. The veins of the fundus become full and tortuous, and the papilla is somewhat raised, due to the forcing of cerebro-spinal fluid into the nerve sheath by the intra-cranial pressure. This swelling of the papilla is transient, and passes off in the first twenty-four hours, even if the compression continues, because the pressure gradually flattens the sheath out against the body of the nerve, so that the fluid cannot enter the sheath.

The veins, however, remain tortuous, and, as the pressure increases, the arteries of the fundus are seen to become smaller and smaller until almost obliterated. The vagus pulse, slow, regular, and somewhat soft, is early apparent, as a rule, and is no criterion of danger, as it is present before the pressure is sufficient to cause cerebral anemia.

We may get the compression so rapidly developed that the vagus center is overcome early and the pulse is found rapid and hard at the first examination. In cases where these two signs only are present, with respiration and blood pressure normal, we may well watch the patient and withhold the knife if he is in good general condition. But with these present or not, we should make frequent blood pressure observations, as the vaso-motor center holds the key to the situation, and when the blood pressure shows a gradual rise, or remains high, operation is imperative, and should be done without delay.

If the respiratory center is affected, as shown in irregularity in depth and rhythm, even with a falling blood pressure, attempt should be made for a rapid decompression, for now the vaso-

motor center is failing and death is imminent. What shall we do for relief?

It matters not what form of decompression operation we do, so that it is well and cleanly done and accomplishes the desired result—the relief of pressure upon the brain. The more simply and quickly it is done, the better for the patient, and for that reason I prefer the Cushing sub-temporal operation. It is easily done, with slight hemorrhage as a rule, and gives ample exposure. It should be done on the right side if at all feasible, and if the pressure is not relieved, due to sub-tentorial pressure, it may be wise to do a sub-occipital operation to relieve the pressure below the tentorium. The Hudson operation is better suited for tumor cases than for this work.

In depressed fractures, of course all depressed fragments and loose lacerated brain tissue should be removed, and the wound taken care of by the proper drains and dressings.

In all our work in these cases, we must bear in mind all the time that infection is one of the most potent causes of death in these injuries, and our efforts must at all times be directed toward the combating of this by all means in our power; and we should not go into the work without due regard to the possibilities from this source.

Just a few words as to the before- and after-treatment often accorded these patients. What of the time-honored ice-bag? Just what is it supposed to accomplish? It has been shown that cerebral anemia is the cause of death in compression. Granting that the ice bag will accomplish a lessened flow of blood in the underlying brain, it is the most deadly thing that could be used, and should be relegated to the scrap heap. If it causes a congestion by local paralysis of the arterioles, there is just as little sense in its use. If it relieves restlessness after pressure has been relieved, its use would then be admissible.

Aconite and the bromides are often given. They both act as depressants to the vital centers, and add more load to that they are already struggling to overcome, and do harm. The bromides are also accredited with the power to produce cerebral anemia, the very thing that we want most to avoid. Blood-letting has even been resorted to in these cases, as well as the administration of morphia. These need no discussion here, except to condemn them. I am not, as a

rule, a subscriber to the doctrine of *similia similibus curantur*, but in these cases we should use the remedies that will have a tendency to aid nature in keeping up blood pressure, and avoiding cerebral anemia, rather than use those opponents that will certainly aid in carrying on the patient. Strychnia, salt solution, solution of sodium bi-carbonate, and adrenalin are indicated to aid nature all that is in our power, until we can give the proper aid by opening the skull.

Kocher has said that "In every case of cerebral injury, with persisting and increasing severe disturbance of function, operation is indicated, even when there are present none but the focal signs of injury."

I would emphasize that in all brain injuries, do not operate unless you have some definite result that you hope you will accomplish by your operation.

61 Washington Street.

SHOULD VIRGINIA HAVE A MARRIAGE LAW BASED ON EUGENICS?*

By C. P. WERTENBAKER, M. D., Norfolk, Va.

There is no question before the public to-day in which there is greater interest than that of Eugenics, and the measures necessary to check the increase of defectives. The magazines and newspapers are filled with articles on various phases of the subject, and medical and other scientific journals are discussing it. The importance of the subject must be apparent in as much that it underlies most of the important problems of sociology, public health, and the general welfare of the people.

Prominent among the measures proposed to meet these conditions is the adoption of additional laws regulating marriage. In all civilized countries laws exist declaring who may marry, and prescribing the necessary requirements to enter into the marriage contract. Legally marriage is a contract, though of a higher order, and differing from other contracts in that it cannot be dissolved except with the consent of the State. It is now proposed that the laws regulating marriage shall be extended in their scope, in order to prohibit the marriage of persons who have certain defects

or diseases, the transmission of which is known to be detrimental to the general welfare.

I bring the subject before you to-day in order to draw attention to some features of legislation that have already been enacted in some States, and are proposed in others, for the purpose of trying to ascertain whether such a law is desirable or not in this State.

I do not pretend that I have solved this complex problem. I am merely an earnest student of the subject who is trying to get all the information possible upon it. I hope it may be of interest, and possibly of value, to you, to give the results of my investigations thus far, and the conclusions drawn from them.

WHY SUCH A LAW IS DESIRED.

Let us consider briefly the reasons that have led to a demand for enlarging the scope of the marriage laws.

The transmission of mental, moral and physical characteristics from parent to offspring is well known. It is unnecessary in this State, and before this audience, to dwell upon the value of "good blood" in man or in animals. Probably nowhere is the truth of the maxim "blood will tell" more firmly believed than in Virginia. What is true of good blood is also equally true of poorer stock.

It is well known that defective mental, moral and physical characteristics are frequently transmitted from parent to offspring through many generations. It has been shown in the mating of a normal individual with a defective that the degenerate influence often makes itself manifest in the children through generations. As a rule, normal people have normal children, and defectives have defective children. It is the old story of a good tree bringing forth good fruit, and a defective tree bringing forth poor fruit.

Careful studies have recently shown that the number of defectives in this country is increasing rapidly. In England a royal commission, after investigating the subject for four years, came to the conclusion that the feeble-minded were increasing at about twice the rate of the rest of the population. (The exact figures given were: normal families, 4.; feeble-minded, 7.3.)

Goddard states there are at least 1,500 feeble-minded children in New York City alone. The ratio is probably equally as great throughout the country. These figures refer

*Read before the forty-fourth annual meeting of the Medical Society of Virginia, at Lynchburg, October 21-24, 1913.

only to those whose defects are such as to warrant their being classed as feeble-minded. The degenerate influence, however, does not stop with those classed as feeble-minded, but must extend, in greater or less degree, to all of the progeny, and many, though classed as normal, have weaknesses that reduce their efficiency.

Many people who pass as normal are in reality feeble-minded to a certain degree. It is stated that a large proportion of criminals, paupers, prostitutes, drunkards and ne'er-do-wells are feeble-minded. The Chicago vice commission states that 80 per cent. of all women between the ages of twenty and twenty-five years, from houses of ill-fame, who were examined, exhibited a mental capacity of children from twelve to fifteen years of age. Twenty-five per cent. of criminals are said to be feeble-minded. Of 100 children committed to the Detention Home in New York by the Juvenile Court, 67 per cent. were found to be feeble-minded. Illustrations such as these could be multiplied indefinitely.

It has been estimated that the care of defectives in the United States costs the country over \$100,000,000 annually. In Virginia, according to the annual report of the State Board of Charities and Corrections for 1911 (page 11), there are 6,000 feeble-minded persons in the State. The estimated cost of the institutions for the care of defectives in Virginia is \$1,066,000, and maintained at a yearly cost of \$317,000.

In Virginia, at present, there is no legal bar to the marriage of the feeble-minded, paupers or criminals, and it not infrequently occurs that paupers, who are inmates of almshouses, being supported by the State, marry and have children who must also be supported by the State.

In a paper read in this city last year, Dr. H. W. Dew, of Lynchburg, states that in an adjoining State fifteen feeble-minded women gave birth to illegitimate children in one almshouse within six weeks. The cost for the care of defectives has grown so great that some means must be taken to check it.

Another reason for supervising and investigating those who marry is the fact that at present there is no bar in Virginia to the marriage of those suffering from transmissible disease, and, as a result, syphilis, gonorrhea, tuberculosis and other diseases are being spread

through this means. It is estimated that 75 per cent. of all special surgical operations on women are made necessary by gonococcus infection. It is said that from 60 per cent. to 75 per cent. of adult males have been infected with gonorrhea at some time. Twenty-five per cent. of congenital blindness is said to be due to gonococcus infection at birth.

Ten per cent. of the population of the United States is said to be syphilitic. Dr. Prince A. Morrow estimated that when the father alone is infected with syphilis the mortality among children is about 38 per cent. When both parents are infected the mortality averages from 60 per cent. to 80 per cent. Fully 33 per cent. of all infected children die within the first six months. Those who do not die within this period are most likely to be mental or physical defectives. It is said that one out of every four cases of hereditary insanity is due to syphilis. Thirty-eight per cent. of children with tuberculous hip disease are said to be congenital syphilis. In tuberculous meningitis the proportion is said to be 60 per cent., or more than half.

It is to check such conditions as these that has led to a demand for the regulation of marriage, and to prevent the mating of the defective and otherwise unfit.

While every State has some law regulating marriage, at least 13 have laws whose object is to prevent the mating of the eugenically unfit and those suffering from transmissible disease. One of the most comprehensive of these laws is that of the State of Washington, which provides that "no woman under the age of 45 years, or a man of any age, except he marry a woman over the age of 45 years, either of whom is a common drunkard, habitual criminal, imbecile, feeble-minded, idiot or insane person, or person who has theretofore been afflicted with hereditary insanity, or is afflicted with pulmonary tuberculosis, or any contagious venereal disease, shall intermarry, or marry any other person within the State." Clergymen and other officers are not permitted to marry such persons. Before issuing such a license the county auditor must require each applicant to file the affidavit of at least one duly licensed physician showing that the applicants are not in the prohibited class, etc.

New Jersey prohibits the marriage of the insane, epileptic, alcoholic, or "any person who is, or has been, an inmate of any insane asylum,

or institution for indigent persons," except under certain conditions.

In several States, Virginia and Indiana being among them, bills were introduced in the Legislature which, among other things, prohibited the issuance of a marriage license to any person until a certificate from a reputable physician is presented, certifying "that the person or persons applying for a license to marry are not at the time of applying feeble-minded, insane or have any transmissible disease." (Bill introduced in the last Legislature of Virginia).

The object of these, and similar laws, is clear, the fatal defect in them being that no provision is made for carrying them into effect. The weakness of a law based upon the medical certificate of *any* physician, regardless of his qualifications, that an individual is not feeble-minded, insane or suffering from transmissible disease must be apparent to any one who will consider the subject. It is assumed that because one is a physician he is capable of making an accurate and scientific examination of these conditions. This is, of course, not true. The determination of feeble-mindedness, or insanity, in many cases requires expert knowledge and experience that is not possessed by the general run of physicians. There is but little in the instruction received by a student in a medical school that bears upon these subjects, and in the ordinary course of medical practice the physician does not often come in contact with such cases, therefore, unless a physician has had special experience and training in these lines he is not qualified to give such a certificate.

In order to determine the probabilities that an individual has inherited characters that *united with similar characters of the proposed mate*, would be likely to produce a defective offspring, it is necessary to know something of the ancestry of each partner to the mating, and this can not be determined by a physical examination of the individuals.

To determine the existence of latent syphilis necessitates delicate and complicated tests of the blood that require experience and high technical skill. Such tests have to be made in a well-equipped laboratory by experts who devote themselves to this kind of work, and it is not to be expected that the average practicing physician should be able to make them.

The detection of the gonococcus, the tubercle bacillus, or the treponema pallida is less dif-

ficult, but requires a microscope and a certain technic, and it is not every physician who is equipped to make an accurate diagnosis in these cases.

There is another aspect of these examinations that must not be forgotten. What will be the attitude of the patient to his physician if the patient, wishing to marry, applies for the necessary certificate, and the physician refuses because he can not conscientiously sign such a certificate? Is it not too much to ask of a physician that he should antagonize his patient, and probably incur his lasting enmity?

Considering these aspects of the medical certificate requirements of these laws it seems evident that they cannot be made effective along these lines.

In pointing out the weaknesses that render these laws ineffective, I would not be understood as opposing a medical examination as a means for detecting deficiencies and disease. The idea of such an examination is excellent, provided the physician is qualified; the weak point in the laws under discussion is the assumption that any physician is qualified to make the examinations without special training. We may as well look at these facts squarely. However earnestly we may desire to correct these evils, it is useless to pass laws without adequate machinery to enforce them. It seems better to have no law than an ineffectual one. A word of warning to those who advocate the adoption of laws regulating marriage may not be inappropriate. The greatest care should be exercised to ascertain just what would be the effects of the proposed law, and each step of its execution should be worked out. Tampering with laws in regard to marriage may lead to grave complications in connection with legitimacy, property rights, inheritance, and other features that permeate the very structure of our legal system.

The remote and collateral effects of the law should also be considered. A law regulating marriage that is too drastic, or whose provisions are difficult to comply with, may lead to illegal cohabitation with the consequent illegitimacy of the children, without preventing the propagation of defectives or checking the spread of disease.

The foregoing, though pointing out some of the difficulties of the subject, leaves us still confronted by the question of what are we going to

do to relieve the situation? Something must be done.

I believe that no measures for the control of marriage will be effective until the State has an organization for handling the matter. Realizing the many difficulties in the way of solving the problem satisfactorily, and my own incapacity, it is with great hesitancy that I offer for your consideration a tentative plan that seems practicable, as far as I have investigated it.

There should be established in the State Health Department a division or bureau, similar to the bureau of vital statistics, that might be called the "marriage division," "eugenics bureau" or something of the kind. This division or bureau should have entire charge of all questions relating to the examination of applicants, and the issue of certificates for licenses to marry. The Board of Health could appoint physicians at convenient points throughout the State to make the examinations. These physicians should be officers of the State, and paid by it according to the number of examinations made. The examination should cost the applicant nothing. These physicians would have to be given special instruction and training to fit them for their duties, which would be supervised by the State Board of Health. In cities and towns having a local health officer this health officer could be utilized as the representative of the State Board of Health. When necessary, examination of the blood or discharges could be made in the laboratory of the State Board of Health.

Since writing the above I have received Bulletin No. 9 of the Eugenics Record Office (Cold Spring Harbor, Long Island, New York, price 40 cents) containing a plan suggested by Charles B. Davenport, of the Carnegie Institute, of Washington, D. C., that is an elaboration, and in some respects an improvement, upon the idea that I suggest above. Davenport says:

"For the complete and adequate enforcement of the marriage laws of all the States, three sets of officials are, it seems to me, necessary: 1. State Eugenics Board; 2. State official physicians who shall also issue marriage licenses; 3. Field workers."

He thinks that the State Eugenics Board should be composed of a trained biologist, a general practicing physician, and a lawyer of broad experience, and they should devote their entire time to its duties. To this board should be

referred for decision all questions of the granting of licenses where consideration is clearly required. The vast majority of marriages in any State will not be considered by the Board. If 10 per cent. were considered it would mean 1,700 for Virginia in a year.

State Official Physicians.—According to Davenport, about 16 persons (8 pairs) are married each year per thousand of the population, so that a physician could consider, say, two a week without interfering greatly with his other work. One official physician could care for at least 10,000, and in larger cities even as high as 25,000 or 50,000 of the population. •

The field workers make an investigation of the family history of each of the applicants for a license, and unless there is some definite reason for not doing so the license is granted. In case of doubt on the subject, the matter is referred to the Eugenics Board for decision.

This seems to be the most practical plan that I have yet seen proposed, but I believe that it would be wiser to make the Eugenics Board and all other workers a part of the State Health Department where it could be a bureau or division. I believe that it makes for harmony, as well as for compactness in organization, to have all matters pertaining to the public health in a State, centre in the State Board of Health. Furthermore, the knowledge obtained in making the examination, and in taking the family histories, will be of the greatest value to the health authorities in relation to other conditions and diseases.

What the drawbacks to this plan are, I have not yet had time to investigate, but the plan is certainly well worthy of careful consideration. Just how the idea of furnishing the field worker with the family history will work out, and whether there will not be concealment of important facts, are questions to be considered. The presence in Virginia of a large negro population will complicate any plan for the regulation of marriage. How the proposed plan can be adapted to meet these conditions will require careful study and tentative action. However, there is no plan that can be suggested that will not have some drawbacks, and against which objections can not be raised. It is a question of the greatest good to the greatest number. No law was ever passed that has not been violated, but that is no argument that we should abolish laws.

In conclusion, let me suggest that it seems desirable for the Legislature to appoint a commission to make a careful study of the subject in order to ascertain what legislation, if any, should be enacted. A similar committee from this Society to confer with the legislative committee and study the question in its entirety would doubtless be of great value.

HIGH-FREQUENCY CURRENTS.*

By FRANCIS B. BISHOP, M. D., Washington, D. C.

The term "high frequency current," so often used without qualification, seems in the light of present-day nomenclature, to cover a wide range of meaningless expressions. This term may mean any one of a number of modalities, that differ widely in capacity, tension and frequency, and differ also one from the other in their physical, physiological and therapeutic effects, according to their mode of application. These introductory remarks are not intended as an unkind criticism of those of my professional brethren who have thoughtlessly, perhaps, made use of the expression, "treated by high-frequency electricity," in some of their papers or discussions, but is an earnest appeal to all who are using these valuable modalities to make their statements so clear and well-defined as to be a source of genuine information to all, instead of a source of confusion to many.

It is not my intention at this time to go into the therapeutics of these various currents so much as it is to call your attention to the physical differences of the apparatus used and, consequently, the different qualities of the currents, that are all classified under the one heading, high-frequency.

When we speak of a current of frequency, either high or low, we imply necessarily an alternating current in contradistinction to a current of direction. A cycle is a complete curve above and below the zero line. A period is the time required to make a cycle. An alternation is half a cycle.

In the alternating currents of commerce there are usually sixty cycles to the second; therefore, the period of that current is one-sixtieth of a second, making a frequency of thirty-six hundred per minute, with seven thousand two hundred alternations per minute.

We can in a measure comprehend these low

frequencies, but when we consider the frequency of a Leyden jar discharge, we must depend upon those physicists and mathematicians for information who have given the subject their time and serious consideration.

According to Feddersen, whose researches were very carefully conducted with the aid of rotating mirrors, the spark discharge from a Leyden jar is oscillating in character with a period of about one millionth of a second. These periods vary with the size of the jar—the smaller the jar the greater the frequency.

In order that the Leyden jars may give a continuous flow of these high frequency discharges, it is necessary that one of their coatings (the inner one is generally used) be connected to some source of high-potential electricity. In 1881, Dr. Morton, of New York, took advantage of this idea and suspended (by rods attached to their inner linings) Leyden jars to each prime conductor of his static machine. The patient was attached to the outer coatings of these jars by conducting cords which led to surface electrodes, attached to some portion of the body. When the machine was in action and the sliding rods were carefully separated, a clear white spark jumped between the balls of the sliding rods; the patient in circuit experienced a sensation rapidly vibrating in character, and somewhat similar to the sensation felt under the influence of a rapidly vibrating faradic current. As the resistance was increased in the spark gap by withdrawing the sliding rods, the effect upon the patient became more intense, until the sensation and muscular contractions were unbearable.

The frequency of this current is greater and the capacity smaller, with less painful effects, when small jars are used. Dr. Morton called this current the "Static Induced Current." He was, perhaps, the first one to utilize the high-frequency Leyden jar currents for therapeutic purposes. If we take a solenoid made of several turns of stout copper wire and attach it by its free ends to the outer coating of Leyden jars, as they hang from the prime conductors of a static machine, we will have the arrangement of d'Arsonval. By taking our current now from the ends of the coil and conducting it to the patient, if the capacity has been attuned to the inductance, we should get no perceptible sensory effect (if the contact is perfect) and no contraction of muscles. We should, however, get a

*Read before the Medical Society of the District of Columbia, April 16, 1913.

heating effect throughout all the tissues, and we should also be able to measure our current by placing a hot-wire milliamperemeter in circuit.

The same d'Arsonval arrangement is made by attaching the inner coatings of Leyden jars to the secondary terminals of a Ruhmkorff coil.

Here we get greater ampèrage than we do from the static machine and a greater heating effect.

The arrangement that is very common at this time, is either to take the alternating current from the line at 110 or 220 volts, or to take the same voltage of the direct current from the line and convert it into an alternating current by means of a rotary converter. These currents are then stepped up, through a step-up transformer, to ten thousand or more volts, which become the feeder to the Leyden jars in the d'Arsonval arrangement. The d'Arsonval current from this source is of lower potential usually than that of the coil or static machine, and the heating capacity and ampèrage may be very much greater than either. These d'Arsonval currents from the three sources named differ in their therapeutic values according to their difference in frequency, potential and capacity. All are valuable currents, any one of which may be more valuable under certain conditions than the others.

When diathermia is required for its heating effects upon malignant growths or to heat blood and other tissues of the body, the current with low potential and great ampèrage is the one decidedly in favor. In the treatment of high blood pressure, with or without arteriosclerosis, opinions honestly differ as to the choice of current to be used. When there are heart complications and nephritis, the writer has felt perfectly justified and safe in using the currents of higher potential and small ampèrage, through the static machine transformer. In the majority of cases, in fact, while the current from this source does not always reduce the pressure as much, perhaps, as currents of higher ampèrage and lower tension, there is never any disagreeable reaction, and the good effects seem to last longer. When suffering a year ago from high blood pressure I am quite sure that this was the result in the treatment of my own case.

Auto-condensation is that form of treatment with the d'Arsonval current by which the patient is made the capacity in his circuit. A couch or chair is used, covered with metal, to which a cord from one end of the solenoid is

fastened; cushions of different thickness or boards of fiber, according to the resistance desired in the circuit, are placed over the metal covering of the couch. A cord from the other end of the solenoid goes to the patient, and is held by a suitable metal hand piece, or contact is made over the whole abdomen by fastening the cord to a flat metal electrode fitted snugly to the surface.

The current is turned on, the cushion becomes the dielectric, and offers resistance to the current in proportion to its thickness and density. That the patient becomes the capacity the following experiment will show. When your milliamperemeter is in circuit and shows a reading of what appears to be the capacity of your apparatus, if you will catch hold of the patient's hand, you will thereby increase the capacity, and the reading of your meter will show an increase of current from fifty to a hundred milliamperes.

The ampèrage possible in the newer type of high-frequency machines has been greatly increased, while the spark-gap noise has been practically eliminated through the ingenuity of Dr. Frederick de Kraft, of New York, by introducing in circuit between the inner coatings of the Leyden jars multiple spark gaps. These were at first enclosed by a blue glass spark sound muffler; the metal parts were soon oxidized and were troublesome to keep clean. These have been improved to such an extent that they require no surrounding muffler, are open to inspection all the time, and are easily adjusted by a slight twist of one or both of the adjusting knobs. When the flat metal surfaces are oxidized, they may be cleaned in a minute with a fine flat file without in any way disturbing their arrangement. The capacity of the circuit may be increased or diminished by adjusting the multiple spark gap. This is an advantage, as it is advisable at all times to keep the current running smoothly.

The multiple spark gaps of Dr. de Kraft are used with the d'Arsonval current only, and are especially adapted to currents of high frequency and of low potential. This arrangement may be used with the d'Arsonval current supplied by the high-tension current from a Ruhmkorff coil. But if the heating capacity of the current is pushed too far and the current used for too long a time, the paraffin or wax insulating the coil is liable to melt and run out of the jacket

and the coil will be ruined. This happened to one of my coils last winter.

We know that the Ruhmkorff coil is a step-up transformer. It is usually energized by a one-hundred-and-ten-volt direct current through its primary circuit. When it is transformed through its secondary to a higher potential it gives a current irregularly alternating in character with the preponderance of polarity on one side of the zero line. With this current we are able to excite a direct-current X-ray tube, giving the line of demarkation well defined.

Therefore to excite or feed the Leyden jar in the high-frequency currents of today, we have -

1.—The Rotary Transformer currents; regularly alternating in character.

2.—The Coil currents; irregularly alternating in character.

3.—The Static current; very high potential; direct in character.

These currents all come from the Leyden jar circuits as high frequency currents. That the qualities of these currents differ according to the difference in the qualities of their sources, there can be no question in the minds of those who have had a long experience with all of them. Patients themselves will often decide this question. It is not an unusual experience to have patients who are taking auto-condensation treatments, to express a decided preference for the treatment from the coil or static machine transformer to that given by the rotary transformer. They say it makes them feel better and that the feeling of improvement lasts longer. This cannot be considered as a mere whim on the part of the patients, as the sense of warmth that they experience from the lower potential currents is very agreeable, and the difference in the noise at the spark gap is a comfort that is very much in favor of the lower potential machine. There is, of course, a reason for this difference of effect. It is probably due to the difference in the degree and rapidity of stimulation of the vaso-motor system of nerves.

The vaso-dilator nerves seem to be especially stimulated by these currents, as shown by the sense of warmth over the entire body when one is taking auto-condensation. In diathermic treatment it is a common experience to see the body temperature raised one or more degrees, according to the amount of current used and to the length of time of treatment. Either of the above methods will usually cause a decided sen-

sation of drowsiness, and it is not at all uncommon to find the patient quietly sleeping, while under treatment.

The d'Arsonval current, coming from the static machine transformer has a higher potential than does this current from other sources, even when the ampèrage appears to be the same. The ampèrage, however, from the static machines, even of larger sizes, never equals that of the other type of apparatus. It has seemed to me that my observation would justify the conclusion, that the intense heating properties of the current of lower potential sometimes overstimulates the sympathetic nervous system, with resulting reaction, which is not always agreeable, while the lighter currents from the static machine cause only a gentle stimulation of this great system of nerves and act more in the capacity of a tonic, to aid nature to help herself, instead of pushing to the limit of capacity tissues that are already weakened by disease.

We find in the high-frequency and high-potential currents the same differences in quality, according to the form of generator. Tesla used a solenoid similar to that of d'Arsonval, as a primary around which to wind a secondary or step-up transformer for the high-potential, high-frequency currents. As a result he raised the potential many thousands of volts higher than that in the d'Arsonval circuit. Some of the physical effects of the Tesla current were at the time quite startling.

The differences in quality of the high-potential, high-frequency current are shown in quite a number of ways. The quality of their spark discharges is different. The vacuum tube discharges are different. The effluve from the resonator is decidedly different. These discharges from coil or rotary transformer sources are all more irritating and biting in their sensory effect than those from the static machine.

The effluve from a static machine resonator is longer; the impulse of the discharge is more decided and may be used to much better advantage than that from other sources for producing fibrillary gymnastic exercises of the muscles, or for producing muscular contraction of the body of the muscles, singly or in group.

Fulguration by the long, fat resonator spark of De Keating Hart, the short burning spark of Riviere, of Paris, and the desiccating spark of Dr. Clarke, of Philadelphia, have all at times been classified under the one heading of fulguration by the high-frequency current. Dr. Clarke

prefers the discharge from a special resonator attuned to the capacity of large Leyden jars, excited by a large static machine. The De Keating Hart method may be employed either by a static machine and resonator or by a coil or other forms of step-up transformer and resonator. These are all high-frequency, high-potential currents, but differ very widely in their mode of application and in their therapeutic effects, consequently in the requirements of the different classes of cases.

In conclusion, I wish to call attention to what to me (perhaps on account of a lack of sufficient information) seems like an inconsistency in the transformation of energy, as manifested in these currents of high frequency and low potential, as these currents are shown to measure in milliamperes upon our hot-wire millampère meters. For instance, with the average sized rotary transformer apparatus, we draw from the line of our street current, one hundred and ten volts and, at the most, five ampères. These multiplied together give us 550 watts,—a little less than three-quarters of a horsepower, or 746 watts. The one hundred and ten volts are stepped up through a transformer to, say, ten thousand volts or more, which must break down the resistance in the spark gap between the inner coatings of the Leyden jars. These ten thousand volts charge and keep charged the Leyden jars in circuit. Under favorable circumstances when giving treatment, our instrument will show that we are drawing two thousand milliamperes. This means two ampères at a pressure of ten thousand volts, through the resistance of machine circuit and of the patient's circuit. Two ampères by ten thousand volts equals twenty thousand watts; this equals a little less than twenty-seven horsepower. If the equation used in computing the units of dynamic electricity is applicable to electricity of high frequency and low potential, we have here represented some very remarkable results.

We of course know that these conditions can not be true. We can in no sense create energy; we can only change its form. If our milliamperè meters are correct, then, in some way that I have never heard explained (but would very much like to), the power factor in our high-frequency currents has been eliminated, and we have what has been called a wattless current. I will endeavor to inform myself as

to these conditions, and will be greatly pleased to give any gentleman present my undivided attention, if he can, and will in the discussion, explain this, what seems to me to be a knotty problem.

1913 Eye Street, N. W.

MEDICAL INSPECTION OF SCHOOLS IN THE COUNTRY—THE HOW AND THE WHY.*

By ROY K. FLANNAGAN, M. D., Richmond, Va.,
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The Hallmark of a Progressive City.—The up-to-date city has school inspection of its children, and the thoroughness with which it is done is the best indication I know of the intellectual vigor and progressiveness of the school and health boards having charge. The basis for medical school inspection is grounded in the most accepted principles of public policy and economy, not the least of which is that which affirms that the quality of the manufactured product depends upon the character of the raw material used.

As the Twig is Bent.—To expect, therefore, that the raw material of our city schools, namely the children, will be physical or mental giants, when in the sprouting stage they were warped or bent from the normal, is to expect a result contrary to nature. To hope even that they will somehow rise above the common herd, when the physical handicap is there and steadily growing heavier, is a hope which is almost bound to be deferred forever.

A Bad Bargain.—Educators and sanitarians working together have, in the cities where Progress is the guiding star, made it plain to the business men, who furnish all means to all ends, that money spent on the education of children who are only half present is money more than half wasted; that shoddy citizens must be the product of the broken and defective child material so often entering the school mill; that worse than this is the ever present fact that the scrap heap is made up of the wreckage of more little lives than big.

Destruction of an Ancient Institution.—It is then to stop this waste, to stop this manufacture of inferior citizens, to abolish the human scrap heap, that the medical school inspection:

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tablished. To illustrate: it is known that eye defects, ear defects and throat defects in children, retarding their physical development, dwarf also their mental development, and the effort of the teacher to bring these children up to standard, retards the progress of all the others; and, aside from the wear and tear on the teacher, the service rendered to the bulk of the scholars (i. e., the normal ones) is but a percentage of what it should be.

The Gray Wolves of Childhood.—It is known also that infectious diseases of childhood, with their periodic and absolutely preventable epidemic visitations, interrupting and retarding both study and teaching, are causing the yearly waste of enough money to provide school facilities for all the destitute children in the State, besides turning enough good raw material of child life into sub-standard products to disappoint the fond expectations of thousands of hopeful parents everywhere. It is known, too, that malnutrition, anaemia, tuberculosis and commencing heart troubles in the child, where not discovered and looked after, send to the graveyard unnumbered half-grown children after the State has spent thousands in the effort to qualify them for service in its cause.

The City's Foresight.—These facts have been grasped by many of our cities, and as a matter of pure self-preservation a corps of doctors and nurses stand guard over their schools, that no future citizen be hampered by defects in his or her body which in childhood might have been removed.

Sauce for the Goose Only.—This is good sense. This is good public policy. This is economy. This is real Christianity—for the city—but what of the country? Is there need for this inspection in the rural districts? Of course, say some, you city people need it, crowded as you are into rows of boxes with smoke and dust to vitiate the air you breathe, with noise to shatter your nerves, with unhealthful and artificial occupations and pleasures to sap the stamina of your children both from hereditary and environmental standpoints, and, moreover, you have got the money for frills, so go ahead.

The Country's Boast.—But the fresh air, good water and free life in the open country and in the village, raises naturally a sturdier race. City defects and disadvantages are not for us.

Why should we get excited on the subject? Ah! why? These are your opinions, well and good, upon what facts do you base them? They ought to be true, I admit, but are they?

The Facts in the Case.—It will be a shock to many of you to learn that the healthy looking, sturdy, rosy cheeked country boy, so common a generation or two ago, is now largely a creature of the imagination. He is the exception, *not* the rule. He will do to brag about, to poetize about, but you do not often see him on the roadside or in the rural school. Go and look for yourself; the rosy cheeked girl is more common, but she, too, in the country is a diminishing factor. There are just as many in quantity as ever, if not more, but their physical quality—if the average of those in attendance upon the country school is a fair basis by which to judge—is much below any proper standard.

The Orange County Survey.—The records from the medical inspection of approximately 1,800 school children in a Virginia county last winter, made by the State Board of Health in co-operation with the educational authorities of the State, conclusively show that the Virginia country child sadly needs looking after from a medical standpoint. Here are some of the facts which that survey developed.

The Depleted Country School.—There were in round numbers 4,000 school children in the county; only 2,600 were enrolled, 1,400 missing from the roll books. Out of the 2,600 on roll, 1,800 answered present. I mention this to you representative men to let you know that the school attendance problem in the country particularly needs attention.

Candidates for Cure.—Now, as to defects, we found in the one room white schools 27 per cent. of eye defects, and 23 per cent in the colored schools, the consolidated schools showing up better with only 14½ per cent. As to ear defects, the consolidated schools had 12½ per cent, as against 41½ per cent in the one room schools. Thirty-five per cent of all of them had throat defects, while 58 per cent showed defects in their permanent teeth, 18½ per cent had glandular enlargement in the neck, 31 per cent were poorly nourished, and 30 per cent of the whites were positively anaemic. Eighty per cent of them all reported having had one or more of the infectious diseases of childhood, while one school visited was closed on account of measles in the teacher and pupils. To top the whole, there was

found by actual demonstration 20 per cent hook-worm infection among them.

A Cure for Blight Needed.—This all clearly shows that if this county is at all typical, and the manifest duty by the growing child is to be done, some comprehensive efforts must be made everywhere in the country districts to discover and check the moths and rusts and scales that are blighting the fruit of our educational orchards and gardens. This, then, is *why* medical school inspection in the country is needed.

The How and the Who.—The *How* of medical inspection is a different story and precedents are lacking, so also is money, but the greatest lack of all is men whose thought for the future shall place them in the splendid category of those who are making today the most memorable age of the world's history.

Knowledge the Key.—It is useless to expect conservative country folk to see the need of such an innovation and expense without someone to instruct them. They just do not know, and it is nothing against them that they do not; many of you have not realized hitherto the paramount need of school inspection; I am sure I have but recently begun to see it with clearness. So first and foremost, the matter must be agitated.

The Custodian of the Key.—Doctors! This is where you come in; your position in your respective communities qualifies you as no one else is qualified to take the initiative in this matter, and unless you do it, a manifest duty remains unfulfilled and a patriotic service with its attendant honor is passed on to some more socially alert individual, for the work will be done. It will not be an easy job, for, however convincing the figures from an isolated county may be to the State Board of Health and to you, the hard headed old farmers who pay the taxes for schools are not as a rule responsive to new fangled notions about their health. They will have to be shown. Voluntary service by physicians in most communities must pave the way to a proper understanding.

Ways and Means.—First, then, if you live in the country, after consultation with the board of health, get permission of the principal of a school to make inspection of the pupils. If you are the right kind of a doctor, and I have reference only to the right kind, the experiment will be welcomed and the result will give you the

facts on which to base a campaign. No extensive paraphernalia is necessary and no great loss of time need be incurred. A head mirror, a stethoscope, an ear speculum, a bundle of wooden tongue depressors, and a Snellen's card is all that is needed. In dealing with a one room school, let the boys run out and play and put all of the girls on one side of the room, using the other side for those who have been inspected. Set a stool or a chair against the window that shows the best light, and get busy with your head mirror upon the throat and nose of the first girl in line, examine also the ears and the teeth, let the teacher record on a previously ruled sheet of paper the name and post office of the pupil and all of the facts as they are determined.

An Important Point.—Examine with your stethoscope the apices of both lungs, loosening the *collars only* of the girls; make such examination as you may of the heart through the clothing, but do not attempt anything more thorough at the school. The percentage of organic chest defects is small anyway, and what a sensitive ear cannot detect at the apex of the lung had better be ignored in a wholesale school inspection.

Any bodily peculiarity or deformity should be noted, eruptions of skin, enlargement of cervical and tonsillar glands, color of skin, general physique and vaccination marks.

Sight and Hearing.—When every fact deemed pertinent along this line is recorded, hang up your Snellen's card against one end of the room in a good light and mark off twenty feet. The letters which may be read on the line marked 20 at that distance will indicate roughly normal vision; some one should stand by the pupil with a card or a book obscuring one eye, both eyes remaining open. In a child with defective vision the ability to read the other lines on the card marked 30, 40, 60, etc., testing one eye at a time, will indicate with sufficient accuracy the amount of vision possessed, twenty feet serving as the numerator, the number beneath the letters the denominator, 20-30 vision is two-thirds of the normal, 20-40 one-half vision. This method will not detect all the eye troubles by any means, but school inspection, to be practicable, cannot be exhaustive. In inspection of the hearing, a whisper at 20 feet with one ear closed ought to be heard distinctly, but the ticking of a watch at from 1½ to 2 feet is a more accurate test. When the girls have all been inspected, the boys should

take their turn, the girls going to the playground.

Inspection vs. Examination.—This, briefly, is a working outline of the actual mechanics of rural school inspection, and I may say school inspection elsewhere. I fancy that the unscientific rule of thumb method employed will make some specialists catch their breath in horror. Let them remember that this is inspection, not examination. We are a long way from medical school examination, even if it ever shall be deemed advisable. Seventy-five to eighty per cent of all defects will be caught up by the inspection, and for all practical purposes that will serve.

What's the Use.—The results should be carefully tabulated, and without flourish of trumpets specific information gained ought to be immediately available to the parents of those children found to be subnormal in any particular. The intelligent people of the community will, if tact and judgment are used, commend heartily such an effort to insure the welfare of their children, and demand for its continuance and support will come later as a matter of course.

Social Service Annex.—Desultory medical inspection, however, as indicated here will not quickly bring forth satisfactory and permanent results, unless in connection with it there is started some definite social service activities. The well-to-do parent, when his attention is called to eye, ear, throat, teeth or other troubles in his child, will usually take steps for the correction of them, but what about the poor, the ignorant, and the heedless whose offspring contribute so largely to the defective class? They must be reached, or the ultimate purpose of the inspection (that is, to raise the standard of citizenship) fails.

The women of the community must here, through existing organization or one formed for the purpose, take up the job and put a visitor in the field.

The Social Servant.—A tactful saint from their own number perhaps, or maybe the most popular teacher in the district promoted to better pay and wider service, or, better, if funds available permit, some trained social service worker, whose visits to the homes of all, but especially to those in out of the way and forgotten corners, could be made to work unmeasured blessings.

This scheme is not Utopian; it can be done. Modifications of it are already in operation here in Virginia. It remains but for men and women of heart and purpose to resolve to take it up in their own communities and carry it forward.

Conclusion.—Brother physicians in both town and country, I make no apology for seeming to bind upon your backs another burden for which no pay may be expected. Medical men have never counted the cost in service or in money. They have thrown open to humanity time and time again great discoveries which, conquering disease, have closed great avenues of wealth to them. The same spirit which animated Jenner, Pasteur, Lister, Reed, Lazear and thousands of others, both before and since, is still the real moving impulse of our profession, and I confidently believe that the welfare of the country child, resting as it does so unmistakably in your hand, will find you quick to devise and wise to execute plans which will restore in your locality, if it shall have been lost, that sparkle of eye and that glow of health which is the natural heritage of every child in Old Virginia.

THE METHOD OF PSYCHOANALYSIS.*

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Psychoanalysis is the system of psychotherapy, introduced by Sigmund Freud of Vienna, based upon the principle that nervous disorders, that is the functional neuroses, are due in every instance to the presence within the mental organism of unconscious trends which are of the nature of unfulfilled wishes, and that the various nervous symptoms of such disorders represent a disguised and symbolic expression of these underlying interests.

The position, then, of psychoanalysis is: First, that nervous disorders are in reality psychic disorders, or disorders of feeling or emotion; second, that such disorders involve a mental conflict; third, that the situation in such conflicts represents a struggle between inherent forces of opposed desires; and, fourth, that therefore the nature of the conflict embodied in the disorders we call "nervous," being of the element of desire, pertains in its essence to the moral

*Read before the forty-fourth annual meeting of the Medical Society of Virginia, at Lynchburg, Va., October 21-24, 1913.

sphere, or to the sphere of the sentiments and emotions.

Everyone knows the nature of unhappiness—how it consists essentially of a desire for something which is denied. Everyone knows that such denial, if it concern an interest of sufficiently vital import, may lead to a settled state of mental discontent, and that this discontentment may be of so deep and intense a nature as to amount to a form of so-called "nervousness."

Now the logical cure in such conditions is not to be found in a regime of drugs, massage and electricity. It is not necessary in such a situation to search for some hidden locus of infection, to incriminate the function of the ductless glands, nor, in the case of women, to invoke the conception of obscure anomalies within the region of the pelvis.

The situation here is clearly a mental one. It is a psychic disorder as opposed to the disorders of an obviously structural physical type, such as spinal curvature or typhoid fever.

Now, in the disorders with which psychoanalysis has to cope, the situation, though logically the same, is in so far complicated by the specific condition under which they occur, as to be of a totally different nature—so different as to constitute a distinct type of disease-process.

Although very often in such cases physical examination reveals a perfectly sound organism, there is yet often also no recognized discontent to account for the nervous condition. Indeed, it is not infrequent that the patient will, in perfect sincerity, disclaim all knowledge of the cause of his disorder. He frankly acknowledges the apparent absurdity and unreasonableness of his condition, freely citing his many blessings and declaring himself utterly dismayed to find himself in the state of inward wretchedness to which he has been reduced.

Such is the condition we call a neurosis, and it is to this condition that Freud has devoted so many years of long and patient study, the outcome of which is the method of psychoanalysis.¹

Through his careful researches Freud discovered that nervous disorders—hysteria, obsessional and anxiety states, states of doubt, fear,

and depression, and those frequent manifestations which medicine is too often inclined to label "neurasthenia" and have done with,² such nervous disorders Freud found are as truly a result of mental causation as the state of simple unhappiness and discontentment to which we have referred.

In these diseased psychic states the underlying cause is, as we have said, of precisely the same nature as that which is present in the case of the deeply discontented and unhappy person, namely, the element of disappointment, or dissatisfaction.

However, in the constitution of the neuroses (the disorders of which we are speaking), there enters a distinction that is of critical importance for a proper understanding of neurotic disorders, as interpreted by psychoanalysis.

In the discontented and unhappy individual the issues involved in his conflicts stand clear in his mind, they are sharply outlined before him, that is to say, they are *conscious*; whereas, the opposed trends that are responsible for the conflict within the personality of the neurotic patient possess the specific character of being *unconscious*.³

That is to say, there is a dissension within the personality which lies outside the domain of conscious perception.

As such conflicts are inaccessible to logic, unamenable to reason, being securely intrenched against all attack from without, it is obviously necessary that we follow a very special avenue of approach if we are to reach this territory of the unconscious.

Herein lies the whole meaning of the psychoanalytic interpretation and the rationale of its procedure.

It is the attitude of psychoanalysis that a psychic disharmony—a mental conflict which is unconscious or unknown—cannot be remedied until it has become conscious. This surely is incontestable logic.

Therefore, to bring into the full light of con-

1.—"Studien über Hysterie," Breuer & Freud, *Deuticke*, Vienna, 11, Ed. 1910; Freud, "Selected Papers on Hysteria and other Psychoneuroses," (Brill), New York, 1909; Trizant Burrow, "Freud's Psychology in its Relation to the Neuroses," *Am. Jour. Med. Sciences*, June, 1911.

2.—"The Psychological Analysis of So-called Neurasthenic and Allied States," Trizant Burrow, *Internat. Zeitschrift f. Ethisch. Psychopathologie*, Leipzig-Wien, 1, Jahrgang 1913, and *Jour. of Abnormal Psychology*, Boston, Oct.-Nov., 1913.

3.—"Conscious and Unconscious Mentation from the Psychoanalytic Viewpoint," Trizant Burrow, *Psychological Bulletin*, Apr. 15, 1912.

sciousness the psychological disharmony which is the source of the patient's neurosis is the exclusive task of psychoanalysis. Now, in the mind of this audience there naturally arises the question, how is a patient helped by having an unconscious dissatisfaction made conscious? What avails this recognition? It will be objected that impressions which are unpleasant had better be forgotten; that to advocate the unearthing of painful reminiscences is opposed to the principles of common experience. Besides, it is directly counter to the precepts of all preceding schools of psychotherapy, the essential idea of which is to divert the patient's mind and to encourage him to forget. Now here is just the point on which hinges the basic conception of psychoanalysis. Nowhere does human frailty show itself more persistent than in its tendency to evade—to dodge direct issue. The traditional tendency of the human mind has ever been the seeking to forget. But there *is* no forgetting. Impressions leave their lasting trace. That which is repressed from consciousness is not eliminated from life. Thus the central thesis of psychoanalysis is that nervous disorders are a direct outcome of the futile attempt to "forget" those demands which are inherent in human life, and the physician who studies the psychology of nervous disorders cannot fail to recognize that these very disorders are of themselves the strongest testimony of the lastingness and permanence of unconscious experience, for through the technique of psychoanalysis it has been clearly shown that the symptoms of neurotic disorders are nothing other than the expression of these repressed memories. In other words, the neurosis is the organic memory—if I may be permitted such a usage—of repressed conflicts.⁴

This is not a fanciful theory—a picturesque induction,—but the result of experimental sequence which has been demonstrated under conditions of psychological control as efficient and trustworthy as the objective tests of the physical laboratory. This experimental sequence to which I refer consists of the immediate relief of the neurotic symptom which follows upon the patient's recognition of its unconscious association with the repressed memory for which it stands.

The objection, then, of conventional expe-

rience that what is unpleasant had better remain outside of consciousness, finds its answer in the fact that certain trends, if excluded from consciousness, will reappear in a disguised form, such form constituting a nervous disorder, whether it is expressed in the psychic substitutes represented by anxiety neuroses or in the physical mimics of hysteria, or in whatsoever altered shape these repressed memories may vent themselves.

The task though of bringing such repressed and distorted memories into the consciousness of the patient is a far simpler matter for discourse than accomplishment. It is a task which requires very patient, tactful study of many weeks, for it must not be supposed that an organism in which are embodied tendencies which it has hidden from itself for nearly a lifetime (for the nucleus of the neurotic disorder is formed in early childhood) will easily be induced to yield up its life-long secret.

There is that in the patient which is opposed to his analysis, which seeks to evade discovery and disarm attack, and, therefore, the patient prefers to abide by his unconscious choice and cling to the resources he has discovered in his neurosis. His disease is his unconscious defense. It is his accustomed means of self protection. It is thus dynamic, it answers a purpose, supplies an unconscious but misguided want in the patient's life. In other words, the neurosis represents the patient's ingrained repulsion to the acceptance of the elemental truths of life. It will be understood, therefore, that to dislodge him from his false position requires the utmost ingenuity and resourcefulness on the part of the psychoanalyst. Remember that the patient cannot and (unconsciously) will not supply any clue which will aid in the discovery of his own hidden perplexity. There are, however, several scientific devices through which the psychoanalyst may make an inroad into the patient's unconscious processes. Such, for example, is the association-test of Jung of Zürich⁵—commonly accredited to Prof. Münsterburg of Harvard,—and the galvanometric apparatus; but the resource which offers above all the most subtle and delicate, if also the most difficult means of discovering the underlying and forgotten memories of the unconscious personality, consists in the method of dream-analysis; for it was Freud's epoch-marking discovery that the

4.—"Psychoanalysis, Its Theory and Practical Application," Brill, 1912. "Papers on Psycho-Analysis," Ernest Jones, London, 1913. "Some Psychological Phases of Medicine," Trigan Burrow, *Jour. of Abnormal Psychology*, Aug.-Sept., 1911.

5.—Jung, "Diagnostische Assoziationsstudien," etc.

patient's repressed trends or complexes as we call them, are expressed not alone in the symptoms and manifestations of the waking-state, but that above all during sleep when the force of conscious repression is necessarily abated, these prohibited interests are symbolically portrayed most potently in the patient's dreams.⁶

Psychoanalysis becomes, therefore, practically synonymous with dream analysis.

Having induced in the patient a restful attitude of mind, it is possible through his quiet contemplation of the different elements of his dreams to bring to his mind the recollections of incidents associated in his memory which are of the utmost significance in the determination of his repressions. It is through the repeated process of releasing these repressed reminiscences, with the subsequent psychological explanation of their meaning and their normal place in the mental economy, that there is gradually brought about that re-education and conscious adaptation which leads to the patient's final adjustment and health.

Through psychoanalysis it has been shown that the tendencies which undergo repression belong to the sphere of the primitive, elemental, egotistic interests, that they consist of the biological instincts and cravings, as opposed to the more advanced ethical and social adaptations. Therefore, the objection is often raised that if these repressed trends are unethical, it is but right that they should be repressed and, accordingly, it is piously argued that psychoanalysis is an iniquitous system in that it aims at the removal of those righteous inhibitions which religion imposes upon man's lesser nature.

This attitude is a quite frequent one, but while it does credit to the moral sensibilities of its advocates, it is due to a misapprehension as to the meaning of repression. It is an attitude that is due to failure to discriminate between *repression* and *control*.

Let it be remembered that repression means only the thrusting aside from conscious acknowledgement of unwelcome tendencies—of tendencies which are shocking to the moral ideal; whereas, control is, on the other hand, the withholding from conduct of perfectly conscious desires.

Now, to bring undesirable tendencies into the patient's consciousness is by no means to vindicate them or to admit them into conduct. On

the contrary, the purpose of psychoanalysis in removing repression and permitting a patient to face openly his hidden, unconscious wishes, is precisely to bring his inadmissible impulses under the healthy domination of the will.

Nothing is so fatal to a just appreciation of the method and aims of psychoanalysis as the tendency to confuse the conception of unconscious repression with that of conscious inhibition. Repression is disease; inhibition is health; repression leads to inefficiency and social negation; inhibition is an important asset in social evolution leading to the highest development of the race. To eliminate repression, then, is only to open the way for the freest exercise of the most efficient and intelligent inhibition.⁷

We repeat that the essential factor in the causation of the neurosis is an inherent disharmony or disunity in the life of the patient.

The force in virtue, of which the more elemental, instinctive demands of life have in consequence of conventional ignorance been excluded from conscious acknowledgment, Freud called the phenomenon of repression.

The inherent situation presented in nervous or psychic disorders, then, is that of an inner conflict due to a repression within the life of the patient.

It is the position of Freud's followers that the logical means of correcting disorders due to repression consists of the thorough analysis of the repressed tendencies and their conscious incorporation into the patient's life-interests, in order that through his intelligent re-education there may be brought about that unity of personality or harmoniousness of life we call health.

707 St. Paul Street.

The patient in the Texas negro's home had recovered. The health officers came around to take down the smallpox sign.

"Sholy you-all ain't a-goin' to take down dat sign, is yuh?" he asked plaintively.

The officials replied in the affirmative.

"Now, ain't dat too bad! Dere ain't been nary a collector roun' dis place for weeks while dat sign 'uz up dere. Kain't you-all leave it dere, boss?" *Etc.*

7. Triggant Burrow, "Psychoanalysis and Society," *Jour. of Abnormal Psychology*, Boston, Dec., 1912-Jan., 1913.

6.—Freud, "Traumdeutung," Leipzig-Wein, 1911.

KEEP THE RACE PURE.*

By CHARLES V. CARRINGTON, M. D., Richmond, Va.

Read the Gospel of St. John, 8th chapter, from the 1st to the 12th verse.

My friends, I have accepted your invitation to address you to-night because we, all of us, need education and information on this great and vital subject of race purity. The necessity is so apparent for education and proper action on this question, that it hardly seems necessary to bring before you unanswerable arguments and reasons to awaken you to action.

There is not a man present, unless he is insane or feeble-minded who, when the bald and glaring facts of the fearful contamination of the human race by syphilis and gonorrhoea is shown to him, will not bow his head and say, admitted. Now, what can we do about it?

I must confess that I am staggered when I attempt in a feeble way to partly answer this question, and try to point the road that we and our children, and our children's children to the fourth generation must try to follow.

It is no answer to the question to say, "Stamp out syphilis and eradicate gonorrhoea," and, after giving this academic advice, put on your hat and go your way, and let your boys or your girls grow up uninformed and uneducated on the, to them, vital subject of personal purity in sex matters. Of course, you expect your daughters to be pure. Why? Just because their mothers and grandmothers were pure. Do you expect your boys to be impure just because you were impure when a boy? Do you wish and mean to let your boys run the risks that you ran and contract gonorrhoea or syphilis as you perhaps contracted it? I am speaking plainly, but I would not speak coarsely. I despise coarseness. I am speaking as a doctor who has seen something of the horrors and ravages of syphilis and gonorrhoea, both of them "communicable diseases of immoral origin." I will call your attention later to that same phrase.

Now, don't you know,—if you don't, it is a fact—that 75 per cent. of all the cases requiring special surgical operations on women are caused from gonorrhoeal infection, and that over 60 per

cent. of this number are innocently infected! It is the woman who always pays the price.

Don't you know that syphilis blights everything that it touches, and leaves a sickening trail of enfeebled and deformed bodies, darkened and perverted minds? Ten per cent. of the population of the United States is said to be syphilitic. Twenty-five per cent. of all the cases of congenital blindness comes from gonorrhoeal infection. Just think of the poor little innocent babies, blinded, and by the sins of their father's scarred!

Syphilis is directly responsible for epilepsy, insanity in many instances, feeble-mindedness, and all of the ills that follow in its train. "The sins of the fathers shall be visited upon the children unto the third and fourth generations." Did you ever pause to think what a fearful thing heredity is? Most of us have seen Jean Millet's wonderful picture of *The Man With the Hoe*, and have read and pondered over Edwin Markham's poem, which has the same title and was inspired by this same painting:

"Bowed by the weight of centuries, he leans
Upon his hoe and gazes on the ground,
The emptiness of ages in his face
And on his back the burden of the world.
Who made him dead to rapture and despair,
A thing that grieves not and that never hopes,
Stolid and stunned, a brother to the ox?
Who loosened and let down this brutal Jaw?
Whose was the hand that slanted back this brow?
Whose breath blew out the light within this brain?"

Just carry that picture with you a moment—"A thing that grieves not, and that never hopes:" that is a picture of heredity for you, with a vengeance; that is the result of some degenerate syphilitic ancestor; that is the thing that is filling our almshouses, insane asylums, jails and penitentiaries to overflowing; that is the thing that came from a "communicable disease of immoral origin."

Are you going to let your son and daughter be *that thing*—in the third or fourth generation? No! a thousand times, no!!

Can't we, all of us, have the courage to take our boys in our arms when they are fourteen or fifteen, and say something like this to them: "Some of these days you are going to grow up—going to be a grown man—and somewhere in the world, maybe just around the corner, is a sweet, pure, innocent young girl, just as pure and sweet as your dear mother was when we were

*Read before the St. Paul's Club, of St. Paul's Church, Petersburg, Va., November 25, 1913. In a statement for the Club, Rev. E. P. Dandridge says the paper "was received with profound interest and unanimous approval. The Club desires to endorse it, and to aid in giving it the widest possible publicity."

married; and this girl, whom you know will be pure and clean, will some day, if you are worthy of her, marry you—be your wife. Now, can't you be as pure and clean when you ask her to marry you, and marry her, as you *know* she is pure and clean?" This, or something like this, would be the sweetest and closest bond between father and son; and the angels in heaven would shout with joy at each and every such talk between father and son. The double standard of virtue would receive a crushing blow if we all would, in this generation, have some such talk with our boys. You will recall the portion of Scripture read as an introduction to my remarks;—that poor creature was taken in the very act of adultery, and still we have no mention of the man in the case. Under the Mosaic law *both* should have been stoned to death in the market place, but the man goes so scot-free under the vicious workings of the double standard that he is not even hauled before our Saviour as a witness against the poor woman.

My friends, the double standard must go—in time it will go.

I was asked to appear before you and give a talk on Eugenic Marriages. I accepted your kind invitation because I wished to in every way possible uphold the standard raised by the Diocesan Council of the Episcopal Church in their recent convention.

The key note of my talk is—Keep the Race Pure. Let that be our text and watchword. If this generation of physicians will meet the issue fairly and squarely and lend their every effort, in season and out of season, to the education and enlightenment of the public on the great good and blessing that would come to humanity as a result of Personal Purity—with the resultant Race Purity—the next thirty years A. D. would be the greatest period in the history of the ages.

Physicians as a class are always self-sacrificing and unselfish in their efforts to benefit humanity. The last thirty years have been literally full to overflowing with the beneficent results of their work. It would not be proper in this paper and discussion to dwell on the inestimable benefits to mankind that have resulted from antiseptics, diphtheria and typhoid antitoxins, salvarsan, and the hosts of other serum antitoxins and phylacogens. We physicians all know of the insidious ravages of syphilis. We know that a confirmed epileptic, an insane person, a feeble-minded individual, should not marry

and beget children. We all know that the curse to the third and fourth generation is sure to follow. We have God's word for it. And still we, most of us, sit by and will not raise our hand or voice to help forward the great movement for Race Purity.

It is always most striking to bring these matters home to our own people, here in Virginia. There was a time, fifty or sixty years ago, when one person in every thirty-five hundred was a criminal, that is, was caught in some wrong doing, and sent to the penitentiary or to jail. Now, in 1913, one in every four hundred and eighty goes to jail. Over ten thousand feeble-minded persons are living, and some of them right now reproducing their same species in Virginia. Our insane asylums, for whites and blacks, are full and over-crowded.

Before the war, fifty years ago, an insane negro was an unknown quantity in Virginia. Now we have over sixteen hundred of these poor creatures in the colored asylum in Petersburg. And so we might almost unendingly enumerate the evidences of Race Impurity. We physicians all know these things to be true, and now it behooves us to not only "stop" and "listen," but, by a great and united effort on our part, inaugurate and carry through a campaign of Education on Race Purity. It is all very well and certainly most proper for the Clergy to go to the fountain-head of this matter and say that they will not marry parties who have a communicable disease of immoral origin, but it comes right back to us, the physicians, to give the certificate—clean or unclean.

Everything, every movement has to have a beginning, and their decision not to marry people having a communicable disease of immoral origin is a splendid idea, as far as it goes, and we physicians should unhesitatingly do everything in our power to aid in this movement,—but in time it should be possible to forbid the issuance of a license to any person having a *communicable disease*, no matter of what origin. That takes in everything, from diseases of personal immoral origin to diseases of inheritance. Then, and only then, will we begin to stem the tide of criminal, degenerate, feeble-minded, epileptic and insane, which is so surely polluting and threatening extermination of our race.

The double standard of virtue, which men for ages have arrogated to themselves, is sinfully, cruelly wrong. Caesar's wife must be above sus-

picion, but Cæsar can be, and often is, a black-hearted, unclean, lecherous scoundrel who, in entering the holy bonds of matrimony, prepares to scatter, to even the third and fourth generation, the whirlwind of disease, suffering and sorrow, which his descendants must reap because, perchance, under this same double standard of virtue, "he has had his fling in the fresh keen hour of youth." Holy matrimony is an honorable estate, instituted by God in the time of man's innocence. The first marriages on earth were theoretically and actually eugenic marriages, that is to say, the contracting parties were actually without mental, physical or moral taint. When sin entered into the world and the expulsion from the Garden of Eden followed, and on the heels of this exodus came the elevation of the double standard of virtue for men to live under, then slowly but surely, through the ages, race deterioration ensued. Of course, no one is able to sav at what date epilepsy, feeble-mindedness, insanity, pus tubes, ophthalmia neonatorum and degeneracy in its varied forms became established as the heritage of the human race, but it is pitifully and solemnly true that all this, and more, is our heritage in direct ratio as our fathers and forefathers lead exemplary or immoral lives. Heredity is a fearful, non-get-a-way-from proposition, and God grant that we of this generation give our utmost efforts to the betterment of this, our generation, so that succeeding generations may rise up and call us blessed; for it is assuredly a fact that you can as certainly *out-breed* epilepsy, feeble-mindedness and degeneracy in all its forms, as you and your forebears could *in-breed* them.

One little entering wedge has been driven by which a ray of illuminating light may enter this dark and undiscussable subject, by the public action of the Episcopal Diocesan Council of Virginia, when last spring in open session they passed the following resolution:

"Resolved, That it is the sense of this Council, that for the sake of the protection of women and for a higher appeal to men, it is desirable that ministers of this diocese, as rapidly as they can secure such co-operation from the physicians of their several communities, as shall satisfy them that their position will be effective, either by themselves or in conjunction with ministers of other churches, shall declare their determination to perform the marriage service of the church only when the man to be married shall

secure from the family physician of his intended bride, or from some other physician certified to by the bride's physician, a certificate of his freedom from communicable disease of immoral origin."

This is an epoch-making resolution. Patrick Henry's fiery appeal uttered more than a century ago in old St. John's Church, in Richmond, "Give me liberty or give me death," is hardly a "marker" compared to the far-reaching effects of this calm, deliberate resolution of a distinguished body of clergymen and laymen.

I said this resolution was an entering wedge—it is in truth an entering wedge—and such a wedge as will split asunder this double standard of virtue for men only; but this wedge can only be driven home by the united efforts of all good men and fathers, without regard to denomination, sect or citizenship.

I can very well see how some good men and fathers differ in opinion as to the proper methods of carrying out the *spirit* of this resolution, but for the sake of long-suffering womankind and the relief and betterment of the condition of the unborn generations, if you cannot suggest some better resolution to fight under, don't meet this gravest of situations with levity and lies.

Very recently I heard a physician, an old man, too, say that "No harm came from moral uncleanness, provided you took reasonable precautions," and that "*moral uncleanness was a necessity for men.*" There is not one scintilla of truth in either of these degrading statements; they are both of them contemptible lies out of the whole cloth. One feels like apologizing for using strong English, but none of Shakespeare's seven definitions of what is a falsehood fits the crime. You must meet such false and degrading statements with a stiff right-handed "Liar" from the shoulder—especially when, who can say that just such speech and doctrine might reach the ears and be acted on by your now pure and innocent boy entering his teens.

To the end that this resolution of the Episcopal Diocesan Council of Virginia might become effective, certain Episcopal ministers in Richmond, thirteen in number, after due consideration, have given full notice to the public that on and after October 1st, 1913:

"We, whose names are signed below, holding the ideal of purity to be of right as sovereign for men as it is for women;

"Recognizing that the finest men in every rank

and calling honor this ideal, but deeply moved by the contrasting fact of that ignoble tolerance among too many which ignores this single standard, and condones in men a carelessness in morals which every chivalrous instinct should condemn;

"Knowing that immorality in men leads to physical diseases;

"And knowing, further, that these diseases are often transmitted to the women, who, in innocence and purity, marry men whose lives have thus been tainted, as the shocking facts to which physicians and surgeons in this city, as in other places, will testify, give proof;

"Therefore, in order that we may do our utmost to prevent these physical tragedies, and, further, that we may lift up the standard of a new crusade against the shame of that indifference to personal purity among men which makes these tragedies possible;

"We are resolved that after October 1, 1913, we will perform the marriage services of our respective churches only when the man to be married shall have secured from the family physician of his intended bride, or from some other physician certified to by the bride's physician, a certificate of his freedom from a communicable disease of an immoral origin.

"And we call upon all fathers and mothers to interpret aright and to support this position we shall occupy; and especially do we summon all that great number of men to whom, because of their pure lives, the requirement we have outlined might seem a needless inconvenience, to bring the power of their unselfish co-operation to the side of this endeavor to make more commendable the ideal of purity for all."

Another epoch-making resolution! And God grant that, having put their hand to the plow, they do not turn back.

No one dreams that these resolutions will be lived up to, to the letter; they cannot be, in the nature of things—"All men are liars and desperately wicked"—at times, but they have a teaching, enlightening effect, and will be powerfully deterrent on the young man contemplating leading a pure young girl to the altar.

Some of our good men and fathers say that the State should regulate such matters. Good! I for one firmly believe in State regulation, and it will come in time, but I also believe in *church*

education, and church education backed up by all good men, fathers and physicians, should begin right now, and in time, just as light follows darkness, our Legislature will see the light and enact proper laws for carrying out the spirit of these two splendid resolutions.

In hearing doctors discuss this movement, one said it was offensively inquisitorial and much too expensive to be put into full operation. The answer to this is very easy: A pure man does not and will not fear inspection and interrogation; a diseased man should be discovered and cured, for his own sake if not for the sake of the girl he doubtless loves to the limit of his ability; and then, when cured, a proper certificate would be readily forthcoming. Ah! But the kicker says, look at the expense. I would reply, "The way of the transgressor is hard." "The wages of sin is death." If the transgressor does not choose to pay the bill, then do not let him inflict death, and worse than death, on the innocent party to the proposed marriage contract. When the last word is said, the matter of expense is trivial. From two to five dollars would cover any ordinary examination of an honest man. Any suspicious case requiring blood examination could be thoroughly and completely examined for ten dollars.

I have called these resolutions entering wedges; they simply attempt to deal with communicable disease of immoral origin—that is a big enough proposition as an entering wedge. The real eugenic marriage would mean not only singling out the cases coming within the scope of the resolutions, but all mental, moral and physical imperfections would debar a candidate.

I bespeak your earnest and careful consideration of what I have said, and beg the assistance of all good men, fathers and physicians, to the carrying out of the spirit of these two resolutions in your several communities.

In closing, let me give you a thought from the brain and pen of that genius, Ella Wheeler Wilcox, entitled,

THE PRICE HE PAID

I said I would have my fling,
And do what a young man may;
And I didn't believe a thing
That the parsons have to say.
I didn't believe in a God
That gives us blood like fire,
Then flings us into hell because
We answer the call of desire.

And I said: "Religion is rot,

And the laws of the world are nil:
For the bad man is he who is caught
And cannot pay his bill,
And there is no place called hell;

And heaven is only a truth,
When a man has his way with a maid,
In the fresh, keen hour of youth.

And money can buy us grace.

If it rings on the plate of the church;
And money can neatly erase
Each sign of a sinful smirch."

For I saw men everywhere,
Hotfooting the road of vice;
And women and preachers smiled on them
As long as they paid the price.

So I had my joy of life:

I went the pace of the town;
And then I took me a wife,
And started to settle down.

I had gold enough and to spare
For all the simple joys

That belong with a house and a home
And a brood of girls and boys.

I married a girl with health
And virtue and spotless fame.

I gave in exchange my wealth
And a proud old family name.

And I gave her the love of a heart
Grown sated and sick of sin!

My deal with the devil was all cleaned up,
And the last bill handed in.

She was going to bring me a child,

And when in labor she cried,
With love and fear I was wild—

But now I wish she had died,
For the son she bore me was blind
And crippled and weak and sore!

And his mother was left a wreck;
It was so she settled my score.

I said I must have my fling,

And they knew the path I would go;
Yet no one told me a thing
Of what I needed to know.

Folks talk too much of a soul
From heavenly joys debarred,—

And not enough of the babes unborn,
By the sins of their fathers scarred.

Correspondence.

Activity of Fluid Extracts of Digitalis in Milligrams per Kilogram of Cat.

Detroit, Mich., November 25, 1913.

To the Editor:

Will you do us the kindness to read pages 858 and 859, Journal of the A. M. A., September 13? Notice the slurring statement that our Fluid Extract Digitalis, U. S. P., is only 57.66+ per cent. potent.

A glance at the enclosed labels will show you

that we market two fluid extracts of Digitalis—one, No. 597* (which was *not* tested by Puckner and Hatcher), F. E. Digitalis, P. D. & Co., which is *Physiologically Standardized and Strongly Alcoholic*; the other, No. 209†, F. E. Digitalis, U. S. P., which is not physiologically standardized. Observe the very explicit language of the "Note" at the foot of each label. Could anything be plainer or more definite?

In Doctor Puckner's tests he includes—doubtless for good and sufficient reasons of his own—our F. E. Digitalis, U. S. P., which we market only in deference to an existing demand; but the superior product which we standardize physiologically, and which we expressly recommend as more reliable and active than the official, he omits wholly from his comparison.

We contend that the official menstruum is not the one best fitted properly to extract the drug; that the fluid extract made by use of the official menstruum deteriorates rapidly; that this menstruum is inferior to the one we use for our F. E. Digitalis, P. D. & Co., No. 597; and that the U. S. P. extract does not come up to our own standard as represented by the last-mentioned product. We do claim, however, that our F. E. Digitalis, U. S. P., is made from the best quality of drug in strict harmony with the official process. We do not standardize it; we have never pretended to.

Furthermore, Doctor Hatcher's "cat method" of testing Fluid Extract Digitalis is rejected by Edmunds and Hale, whose opinion of the "cat method" is unquestionably shared today by the vast majority of competent pharmacologists: see Bulletin No. 48, issued by the Hygienic Laboratory of the U. S. Public Health Service.

PARKE, DAVIS & Co.,
Frank G. Ryan, President.

*No. 597—which was *not* tested, —is labelled "Fluid Extract Digitalis, P. D. & Co. (Strongly Alcoholic)

* * * Standardized (by Physiological Assay.) Contains 65 H. T. U.'s per Cc. (A Heart Tonic Unit (H. T. U.) is ten times the normal minimum fatal dose per gramme body weight of frogs when tested under standard conditions.) * * * Note—We commend this physiologically assayed Fluid Extract as being more active and reliable than that prepared by the U. S. P. Eighth Revision menstruum."

†No. 209—which was tested—is labelled "Fluid Extract Digitalis, U. S. P. Eighth Revision * * * Note—We guarantee this Fluid Extract to be strictly in accord with the U. S. P. Eighth Revision, but commend Fluid Extract Digitalis (P. D. & Co.), physiologically assayed, as being more reliable than the official product."

The foregoing letter, which is published in full, together with excerpts which we have made as foot-notes from the two labels sent us, is sufficiently explanatory, and is apparently of enough importance to physicians generally to justify mention in our columns. The author of the article to which exception is taken is the Secretary of the Council on Pharmacy and Chemistry of the American Medical Association, W. A. Puckner, Phar. D., of Chicago. In going over the table which he publishes, we find that, with only one exception, none of the larger "regular" pharmaceutical houses, and none of the "physicians' supply houses" comes within 30 per cent. of making what the standard assayed product is presumed to represent, notwithstanding claims of numerous concerns of long-standing reputation to the contrary.

In connection with the above correspondence, we are lead to wonder if many of Dr. Puckner's observations are made without full particulars before him, or if there is bias. Reputations are not always easily made or sustained, and it behooves those who make it a business to pull down, first, to fully justify themselves.

Book Notices.

Text-Book of Obstetrics: Including Related Gynecologic Operations. By BARTON COOKE HIRST, M. D., Professor of Obstetrics in the University of Pennsylvania. Seventh revised edition. Octavo of 1,013 pages, with 895 illustrations, fifty-three of them in color. Philadelphia and London: W. B. Saunders Company. Cloth. \$5.00 net; half-morocco, \$6.50 net.

This is quite a popular treatise on obstetrics, in which the author has continued his policy of including under the same cover, as consequences of the child-bearing process, the diseases of women and their treatment. There are also chapters on the physiology and pathology of the newborn infant. Added to the author's inductive methods of imparting information, his many years as a teacher and his large experience as a clinician have served to enable him to select for presentation the latest methods and those of greatest value. The volume is well suited either as a text-book for students or for the medical public.

Editorial.

Virginia a Registration State.

The U. S. Census Bureau recently announced to the physicians of Virginia the fact that the State has been admitted to the Registration Area for the report of deaths.

That means that at least 90 per cent. of the deaths are supposed to have been reported for the first calendar year of the operation of the new Vital Statistics Law.

This came as a well-earned compliment to the Virginia Health Department and Bureau of Vital Statistics when the fact is considered that the end was attained with less than half the means available in other States of like population.

The fact is not concealed, however, that while the actual number of certificates are on file, many, particularly in the rural sections, are in very poor shape.

Many physicians show a surprising lack of care in reporting the essentials of an acceptable death and birth certificate, which need not occur if attention were paid to the instructions on the margin, back, and foot-notes of the blanks.

In the interest of more accurate statements as to the cause of death, we commend to all physicians the revised pocket reference-book, mailed to each, from the U. S. Census Bureau. It contains the more common errors and the preferable terms to use in stating the cause of death. This should be kept in the vest pocket or on the desk of each.

Use of Heroin Spreading Rapidly Among Drug Fiends.

According to information gathered by the U. S. Department of Agriculture, there has been a sudden and very significant increase in the use of heroin by persons with a drug habit. The sales of this drug have recently increased greatly, particularly in those States which have rigid laws preventing indiscriminate sale of morphine and cocaine. Investigation of the subject establishes the fact that many drug victims, who formerly used morphine and cocaine and who under the new laws find it difficult to obtain these substances, have begun using heroin, the sale of which is not as yet as carefully restricted under State laws. The Department, pending further action, specially warns all people who are unfamiliar with the drug to avoid all pre-

parations containing the substance, and to take it only on the prescription of a reputable physician.

Heroin is frequently found as a constituent of a number of proprietary drugs. Its use seems to be especially notable in parts of Pennsylvania. This year the coroner's office in Philadelphia County has held inquests on five sudden deaths from heroin poisoning. In each case the victim was a heroin fiend and was on a heroin debauch and took an overdose. The substance apparently is far more dangerous for drug users than morphine or cocaine, and its habit is harder to overcome. Drug fiends apparently are able to consume relatively large quantities of the other two drugs, but any sudden and material increase in the amount of heroin taken is very liable to prove fatal.

The labels of proprietary and other medicines purchased by laymen should be carefully scrutinized for a statement which is required by the National Food and Drugs Act of the quantity or proportion of heroin, or any derivative or preparation thereof, and the word "heroin" on any label should be regarded as a danger signal.

The Southern Medical Association

Held its annual meeting in Lexington, Ky., November 18-20, with a large number present and it was both interesting and enjoyable for all in attendance. Dr. Frank A. Jones, of Memphis, Tenn., the president, was in the chair. Among the many diseases discussed in the various sections, malaria and pellagra, two especially indigenous to the South, received their share of attention. Tuberculosis, also, claimed a great deal of discussion.

Congress was memorialized to authorize the continuation of its malaria surveys under the auspices of the U. S. Public Health Service.

Dr. Stuart McGuire, Richmond, Va., was elected president for the coming year. Other officers include Drs. J. W. Jervey, Greenville, S. C., and F. H. Clarke, Lexington, Ky., as vice-presidents, and Dr. Seale Harris, Mobile, Ala., secretary-treasurer. Richmond, Va., was selected as the place of meeting for the next annual sessions.

American College of Surgeons.

We append a complete list of the founders and governors of the American College of Surgeons, from Virginia and North Carolina.

Those from Virginia are Drs. Lewis C.

Bosher, J. Shelton Horsley, Geo. Ben. Johnston, Stuart McGuire, A. Murat Willis, of Richmond; Dr. Southgate Leigh, of Norfolk; Drs. R. L. Rhodes and Hugh H. Trout, of Roanoke, and Dr. Stephen H. Watts, of Charlottesville. Those from North Carolina are Drs. John W. Long, of Greensboro, and H. A. Royster, Raleigh.

The fellows from Virginia are Drs. Robert C. Bryan, Wm. P. Mathews and Chas. R. Robins, of Richmond; Dr. Jos. A. Gale, Roanoke; Drs. Lomax Gwathmey, B. R. Kennon, Levi Old and Robt. Lee Payne, Jr., of Norfolk; Dr. George Tucker Harrison, Charlottesville, and Dr. Jas. S. Irvin, Danville. From North Carolina, the fellows are Drs. K. P. Battle, Jr., Raleigh, and Henry Norris, Rutherfordton.

The South Piedmont Medical Society

Held its seventeenth stated meeting in South Boston, Va., November 18, with a large attendance, Dr. Jas. Morrison, of Lynchburg, presiding. A number of interesting papers, including a symposium on Fractures, were read, during the three sessions. In the evening, the members and visitors were given an impromptu smoker and banquet by Dr. H. S. Belt at his home. The next meeting will be held the third Tuesday in April, 1914.

A pleasing incident of the meeting was the presentation to Dr. George A. Stover, the secretary-treasurer of the Society, of a handsome silver service, in appreciation of his services as secretary and upbuilder of the Society.

Dr. Stuart McGuire Better.

We are glad to note that Dr. Stuart McGuire, of this city, who has recently been confined to his home by an attack of pneumonia, is now convalescent.

The Medical Society of Northern Virginia and the District of Columbia

Held its semi-annual meeting at Hotel Gordon, Washington, D. C., November 19, with a large attendance. A number of papers were read, and the meeting was one of the best in its history. A fine luncheon with toasts and jokes to fill in added to the pleasures of the occasion. Drs. Powhatan Moneure, Bealeton, Va., and A. Barnes Hooe, Washington, are president and recording secretary, respectively. The next meeting will be held in Manassas, Va., May 1914.

Honors for Dr. Harnsberger.

Dr. Stephen Harnsberger, of Catlett, President of the Medical Society of Virginia, was on November 12, invited to a special meeting of the Washington, D. C., Medical Society, and later received with the President of that Society at a reception given at the Cosmos Club. He was also one of the representatives from Virginia at the National Conservation Congress held in Washington, November 18-20.

Dr. S. W. Maphis,

Warrenton, Va., was also one of Virginia's representatives at the National Conservation Congress.

The Clinical Congress of Surgeons of North America,

Meeting in Chicago, in November, elected Dr. John B. Murphy, of Chicago, president. Other officers are vice-president, Dr. Geo. E. Armstrong, Montreal; secretary, Dr. Franklin H. Martin, and treasurer, Dr. Allen B. Kanavel, both of the latter of Chicago, and re-elected. The next meeting will be held in London, England, beginning July 26, 1914.

Reappointments For Virginia State Board of Health.

Governor Mann has reappointed Drs. Stuart McGuire, Richmond; George B. Lawson, Roanoke, and T. C. Firebaugh, Harrisonburg, members of the State Board of Health of Virginia, for a period of four years.

Large Pellagra Death Rate in Spartanburg, S. C.

We note from the *Medical Record* that vital statistics of Spartanburg, S. C., show that pellagra has been the cause of more deaths in that town, during the past year, than any other disease. Of 340 deaths notified, 31 were due to pellagra, and it is reported that there were more than 600 cases of this disease in the county.

The Southern Surgical & Gynecological Association

Is to hold its annual meeting in Atlanta, Ga., December 16-18, with headquarters at the Georgian Terrace Hotel. Dr. John Y. Brown, St. Louis, is president, and Dr. W. D. Haggard, Nashville, Tenn., secretary.

Dr. Sytle Complimented.

Members of sections thirteen and fourteen of

the class of 1914 of the Medical College of Virginia, Richmond, have presented Dr. M. C. Sytle, instructor in clinical genito-urinary surgery, with a handsomely framed printed expression of thanks for his able and untiring efforts in presenting from a practical point of view the science of genito-urinary surgery. They also voted him a resolution of thanks for the use of his many instruments, and his generosity in furnishing vaccines for the patients and demonstrating the value and methods of their administration.

We congratulate Dr. Sytle on this unusual compliment and the esteem in which he is held by his students.

City Inspection of Milk Needed.

In an address before the Massachusetts Milk Inspectors' Association, in December, Ernest Kelly, in charge of market milk investigations, U. S. Department of Agriculture, said, "No matter what safeguards may be thrown around the production of milk, if it is carelessly dispensed in the city, the good may all be undone. A frequent fault is to expend so much energy on country inspection that the equally important subject of city inspection is neglected."

Dr. A. E. Turman,

Of Richmond, Va., who has spent more than a year in travelling abroad and in hospital work in Vienna, has returned home and taken up his work in this city.

The Association of Surgeons of the Seaboard Air Line Railroad

Held their annual meeting in Montgomery, Ala., the last of October, Dr. John H. Miller, of Cross Hill, S. C., presiding. Petersburg, Va., was selected for the 1914 meeting place, and the following officers were elected: President, Dr. H. A. Burke, Petersburg, Va.; vice-presidents, Drs. M. L. Wood, Montgomery, Ala., W. A. Gills, Richmond, Va., and T. J. McArthur, Cordele, Ga.; and secretary-treasurer, Dr. J. W. Palmer (re-elected), Ailey, Ga. Dr. S. E. Harmon, Columbia, S. C., was elected as a new member of the Executive Committee.

The Pi Mu Medical Fraternity,

Founded at the University of Virginia in 1892, held its annual convention in this city, November 28-29, Dr. Paul W. Howle, of Rich-

mond, presiding. The entertainments included a smoker and a banquet at the Westmoreland Club. Richmond was again chosen as the next meeting place, and the following officers were elected: Senior councillor, Dr. L. T. Price, Richmond; vice-senior councillor, Dr. J. Fulmer Bright, Richmond; junior councillor, Dr. Russell Cecil, New York City; general secretary, Dr. B. C. Willis, Richmond; assistant secretary, Charles Phillips, Richmond; treasurer, Dr. S. B. Cary, Richmond; historian, Dr. Geo. R. Livermore, Memphis, Tenn., and editor of publications, Dr. N. Thos. Ennett, Richmond.

Fredericksburg (Va.) Board of Health.

Upon reorganization of the Board of Health of Fredericksburg, Dr. F. C. Pratt was elected president, and by virtue of his position as health officer, Dr. C. Mason Smith was named secretary.

Tuberculosis Hospital for Colored People in North Carolina.

It is announced that the corner-stone was laid on Thanksgiving Day for the main building of a tuberculosis hospital for colored people, in Wilson, North Carolina. More than \$15,000 is already in hand for the plant, and much valuable equipment has been donated. After the hospital has gotten under way, the intention is to establish outside of the city a regular camp, with cottages and tents, for the outdoor treatment of patients.

Married—

Dr. Lewis M. Allen, of Winchester, Va., and Miss Dorothy Newcomer Gilpin, at Millwood, Va., December 10.

Virginia Hospital, Richmond, to Be Used as City Hospital.

On December 1, the Common Council of this city, by unanimous vote, passed the amended resolution reported by the finance committee, accepting from the Medical College of Virginia the free loan of the Virginia Hospital. The Old Dominion Hospital was not deemed exactly suitable for the needs of the city. The taking over of the Virginia Hospital by the city not only provides a hospital in which the indigent sick of the city may receive the best of medical and surgical attention, but will furnish addi-

tional clinical material of great value for the Medical College of Virginia.

Overcrowded Street Cars Are Dangerous to Health.

The Department of Health of Louisville, Ky., is agitating a reform in the matter of overcrowded street cars, based on the danger to public health. They state that most European cities limit the number of passengers in any car to its seating capacity, and such a rule should obtain in this country, the only requirement being the need of a larger number of cars during rush hours.

New Tuberculosis Hospital in New York City.

About the middle of November, Sea View Hospital, on Staten Island, New York, was formally opened, for the care of tuberculosis patients. It is a New York City institution, and has accommodations for about 1,000 patients.

Improved Typhoid Death Rate in Massachusetts.

The death rate of 45 per 10,000 from typhoid fever in Massachusetts in 1877, has been steadily lowered until the rate for 1912 was only 7.6 per 100,000. The Board of Health is not yet satisfied, and hopes to make a still further reduction in the near future.

New Minnesota Law in Regard to Typhoid Fever.

Where possible, the Minnesota State Department of Health is making an effort, in reported cases of typhoid fever, to ascertain whether the infection was received in that State or elsewhere. When the infection is received from some other State, the Minnesota authorities are reporting the fact to health officials in the State in which the infection was received.

The American Association of Clinical Research.

At its fifth annual meeting in Chicago, in November, elected Dr. Leonard K. Hirshberg, Baltimore, president, and Dr. James Krauss, Boston, secretary-treasurer.

Increase of Cancer in the United States.

A report recently issued by the Equitable Life Assurance Society quotes figures relative to the

increase of cancer in this country which are startling. During the ten years 1901-1911, the increase has been 30 per cent. among the males and 22 per cent. among females. While it has increased in the younger ages, its greatest advance has been in middle life and old age.

Vital Statistics of Petersburg, Va.

The report of the Health Department of Petersburg for November shows 54 deaths—20 among the white and 34 among the colored population—and 64 births—31 whites and 33 colored.

Army Medical Corps Examinations.

The Surgeon General of the Army announces that preliminary examinations for appointment of First Lieutenants in the Army Medical Corps will be held on January 19, 1914, simultaneously throughout the country at points to be hereafter designated. There are at present 26 vacancies.

Full information concerning these examinations can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C." The essential requirements to secure an invitation are that the applicant shall be a citizen of the United States, between 22 and 30 years of age, of good moral character and habits, a graduate of a medical school legally authorized to confer the degree of Doctor of Medicine, and shall have had at least one year's hospital training as an interne, after graduation. Applications must be completed and in possession of the Adjutant General at least three weeks before the date of examination.

The Annals of Surgery,

Of Philadelphia, has for December issued a journal double its usual size, known as the *Anesthesia Number*. In addition to surgical papers, it contains a number of interesting articles in regard to anesthesia, by prominent authors.

Houses to Be Placarded for Tuberculosis.

The Minnesota State Board of Health has made a law directing local health officers to placard all premises where there is tuberculosis, and proper precautions are not taken by the patient or those in charge of the patient, to prevent spread of the contagion.

Nurses' Graduating Exercises.

The Training School for Nurses of the Shel-ter Arms Free Hospital, this city, held their graduating exercises November the twenty-first, the graduates being Misses Snedaker, Pope, Pet-tet, and Hoffman, all of Virginia.

The United States Civil Service Commission,

Washington, D. C., announces an open competitive examination for anatomist, for men only, on January 7, 1914. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position at \$1,600 a year, in the Army Medical Museum, Office of the Surgeon General, and vacancies requiring similar qualifications as they may occur.

Applicants must be between 20 and 35 years of age, in good health, graduates in medicine, have a thorough knowledge of pathologic his-tology, pathology, and bacteriology, be capable of making photomicrographs, understand mi-croscopes, surgical instruments and appliances, and be able to prepare, card, and keep in order museum specimens.

Further information may be obtained from the above address by application for Form 1312.

The Instructive Visiting Nurses' Association,

Of Richmond, as an evidence of its good work, treated 3,048 persons during the month of October. More than 100 patients were visited daily.

For Sale—A \$3,000 practice in Piedmont Virginia. Good schools, churches, and splendid villages. Good farming community. Address W, care *Virginia Medical Semi-Monthly*, Rich-mond, Va.—*Adv.*

Obituary Record.

Dr. John Guerrant Trevillian,

For many years one of Richmond's prominent physicians, died at his home in this city, No-vember 24, after an illness of more than two months. He was born in Goochland County, Va., April 1, 1840, and received his early education of private tutors and at Hampden-Sidney Col-lege. Upon graduation from this school, he at-tended the University of Virginia for one ses-sion. He then studied medicine at the Medical

College of Virginia, Richmond, graduating in 1861. Following his graduation, he entered the Confederate Hospital Service, being commissioned assistant surgeon, and was in charge of hospitals in Richmond, Warrenton, and Winchester until he was made chief surgeon in Armistead's Brigade, Pickett's Division, Army of Northern Virginia, and he remained with that command through all its engagements until he was paroled at Appomattox.

At the close of the War, Dr. Trevillian located in Richmond, where he built up a large practice, and was prominent socially and professionally. He was chief surgeon at the City Home from 1886 to 1909, when he retired from active practice. He was a member of the local and other medical societies. His widow survives him.

The physicians of Richmond met with the Academy of Medicine and Surgery, November 25th, and passed the following resolutions of respect:

Whereas, the members of the medical profession of Richmond have heard of the death of Dr. John G. Trevillian, a man who, by the purity of his life as a man and a physician, whose high standard of honor in the affairs of life and ethical rectitude as a doctor, has made the profession the poorer by his loss; therefore, be it

Resolved, we desire to place on record our sorrow at his death and appreciation of his worth as a man and a doctor;

That we express to his family our profound sympathy in this affliction; and

That a copy of these resolutions be sent to his family and published in the daily papers and *Virginia Medical Semi-Monthly*.

WM. S. GORDON,

W. T. OPPENHEIMER,

J. SHELTON HORSLEY.

Dr. John Decker Frazer,

Of Danton, Orange County, Va., met a tragic end on November 26, when he was dragged to death by a runaway horse while returning from seeing patients, his body being found later on the roadside near his home. He was born in Orange County 37 years ago, and after an academic education at Fredericksburg College and at Richmond College, studied medicine at the University College of Medicine, Richmond, from which he graduated in 1902, and became a member of the Medical Society of Virginia the

following year. His widow, three small children and a large family connection survive him. A large crowd of sorrowing friends were in attendance at his funeral.

Dr. Thomas Benjamin Amiss

Died at his home, in Luray, Va., November 9. Born in Rappahannock County, Va., in 1839, he was one of the oldest physicians as well as one of the most prominent in his section. He received his academic education at the Virginia Military Institute, and later took up the study of Medicine at the University of Pennsylvania, Philadelphia, from which he graduated in 1861. Throughout the Civil War, he served with distinction as a surgeon on the Confederate side, and was one of the charter members of the Rosser-Gibbons Camp of Confederate Veterans, at Luray. He was an assistant surgeon of the Norfolk and Western Railway, and had been a member of the Medical Society of Virginia since 1903. Two children survive him.

Dr. William Shippen,

Of Petersburg, Va., died at his home in that city, November the seventeenth, aged fifty-two years. He graduated from the Medical College of Virginia, Richmond, in 1887, and had been a member of the Medical Society of Virginia since 1904.

Dr. Edward Bowen Finney,

Of Onancock, Va., one of the oldest and best known physicians of Accomac County, died at a Baltimore hospital, November 24, of peritonitis following an operation for appendicitis. His medical education was received at Jefferson Medical College, Philadelphia, from which he graduated in 1861. He was for a few years a member of the Medical Society of Virginia until he retired from practice owing to failing health. His widow and a sister survive him. The body was carried to Onancock for interment.

Dr. Charles McBurney,

During his career a noted American surgeon, died at his home in New York City, November 7, aged sixty-eight years. He was a graduate of Harvard University and of the College of Physicians and Surgeons, New York, and later studied abroad. He was professor of surgery at the last named college from 1889 until 1907, when retired from active work on account of failing health. His skill in operating for acute appendicitis won for him fame, and a name which will be handed down to doctors for years to come.

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Original Communications.

INTRACRANIAL TRAUMATA AT BIRTH— THEIR INTEREST TO THE OBSTETRICIAN.*

By JOHN F. WINN, M. D., Richmond, Va.

Professor of Obstetrics, Medical College of Virginia;
Obstetrician to Memorial Hospital., Etc.

In the Mortality Statistics for the "Registration Area," of the United States, for the year 1910, there are reported 3,725 deaths from injuries at birth—an enormous number for one year; but this is not all. This Registration Area covers just one-third of the total land area of the United States, and represents only 58.3 per cent. of its total population. It therefore remains for a simple calculation to show that during the past ten years there have been in the United States, *exclusive of still births* the amazing and almost incredible number of 64,240 deaths from birth traumata alone! According to other statistics 4 per cent. of infants die during birth. Schultze, in a study of this subject in 1877, came to the conclusion that 5 per cent. of children are still born and that 1.5 per cent die very soon after birth, the result of injuries at birth. Add to these figures the long list of those who survive the immediate effects of such traumata, but in later years swell the tables of idiots, paretics, epileptics, many of the feeble-minded and the insane as well as a large number of the deaf, dumb and blind, and there develops an interest in this subject that makes it worthy of most serious study and investigation.

In view of the fact that these injuries are not wholly the result of abnormal labor nor of op-

erative procedures, but that they may, and often do follow spontaneous easy births, the responsibility resting upon the obstetric specialist and the general practitioner is one that may not be lightly borne. The writer believes he is correct in saying that upon the general practitioner devolves a very special responsibility in these cases; a responsibility greater than that resting upon the obstetric specialist, because it is he, taken collectively, that has the greater opportunity of safe-guarding the pregnant woman and her child by antepartum investigations; it is he who attends the greatest number of births, and frequently under conditions which require the most discriminative judgment and skill; it is he who sees the first symptoms; it is he who administers the earliest treatment of cerebral compression and it is likewise he who must suggest the probable benefits to be gained by early surgical intervention. From the viewpoint of these statistics it is certain that the ideal in obstetrics has not been realized, nor indeed can anything approaching it be hoped for until medical schools everywhere provide the necessary material for the training of their graduates in abnormal as well as normal obstetrics, and furthermore, until the question of the ignorant midwife has been satisfactorily disposed of, either by education or regulation, or both.

Until very recent years the subject of intracranial trauma of the new born, one now offering very flattering possibilities through cerebral surgery, suggested little more than pathological interest. To Keen, in 1901, we are indebted for having first suggested the need, and to Cushing, in 1904, the feasibility and advantage of surgical intervention for the removal of effused blood.

Etiology. Many causes might be enumerated for the death of the fetus during pregnancy, but we pass directly to the causes which operate

*Read before the forty-fourth annual meeting of the Medical Society of Virginia, at Lynchburg, October 21-24, 1913, as a part of the Symposium on Intracranial Traumata at Birth.

during labor to bring about asphyxia: Those which directly cut off the oxygen, and those causing cerebral compression. Familiar examples of the former are found in prolonged labor with hard pains recurring at such short intervals as to interfere with the renewal of blood in the placental sinuses. A striking example also of this condition is the dystocia developing in the second stage of labor consequent upon contracted pelvis, in rigidity of the pelvic floor, and associated with tetanic contraction of the uterus—a worse state than which could hardly be imagined. Other conditions might be named such as pressure on the cord, and partial or complete separation of the placenta in its normal site; the latter being a frequent accompaniment of breech labors and neglected shoulder presentations.

Cerebral compression may be dependent upon both internal and external causes, the former being exemplified by intracranial hemorrhage or fracture, the latter by pressure from contraction of the pelvis. In either condition the fetal blood current may be so greatly impeded that it does not reach the placenta or, if at all, in such small amounts that asphyxia is the inevitable result. Again, the cranial bones though elastic, may receive a spoon-shape indentation or they may be even fractured by compression of the forceps when not skillfully adjusted to the head, or by hasty traction or both. These accidents, while liable to occur in normal conditions of the pelvis are more frequently met with in moderate degrees of contraction, either because the attendant fails to recognize, by pelvimetry, the disproportion during pregnancy, or fails to give time for molding and configuration of the head so necessary for its descent into the pelvic cavity.

It must be remembered that intracranial hemorrhage is not necessarily dependent upon bone lesions, for the accident has been noted in perfectly normal cases with no ocular evidences of external injuries to the head. Yet, as might be expected, it is more directly traceable to difficult and artificial deliveries. Irreparable damage may also follow hemorrhages into the eye and ear; thus, according to Wolff, Paul and Lequeux numerous cases of blindness as well as deafness can be traced to intracranial hemorrhage attendant upon difficult birth. The forcible expulsion of a premature child by a multipara has been

frequently known to cause such distortion as to rupture the cerebral vessels. This accident may even occur in breech cases. A tedious labor resulting from disproportion between the head and the pelvis, or from rigidity of the soft parts of an elderly primipara, or an excessive molding of the head with consequent great *over-lapping* of the parietal bones, all lead to venous stasis and rupture of the delicate cerebral veins as they pass to the lacunæ of the longitudinal sinus, where they are unequal to the strain put upon them. It is the generally accepted opinion that this over-lapping of the parietal bones is the chief cause of the effusion.

Symptoms Before Delivery. The most reliable external sign of impending danger is obtained from a careful watching of the changing fetal heart sounds. These changes relate to frequency, regularity, strength, and rhythm; and, according to DeLee, give us the key to the entire situation. A persistent fall in the heart tone to 100 per minute signifies danger. If it continues to drop to 80 or less during a pain, no time should be lost in the delivery of the child. Just the opposite condition, namely, a rapid increase to about 160 or 170 is likewise a sign of danger for the child. A sudden change from a slow to a rapid heart beat is to be taken as a sign of paralysis of the vagus center, a condition greatly to be feared. Irregularity of the heart tones is also significant and is to be regarded with suspicion. The count may be strong and for a time fairly good, then all at once a few short snappy, light strokes supervene; then perhaps, everything is so mixed up that it is impossible to learn anything from the strokes. A strong slow beat shows stimulation of the vagus; a rapid weak stroke means a general weakening of the fetal heart. For the reason that these changes in the fetal heart are often associated with cerebral hemorrhage they demand our most critical observation.

Symptoms After Birth. Symptoms of intracranial injury usually make their appearance about the second or third day, and may continue for a week or longer particularly if the bleeding has been gradual. The following analysis by Seitz based upon a study of nineteen cases is complete and concise. It represents two classes of patients: (1) Those who "die away," as he terms it, within a few hours after birth, in

whom autopsy reveals serious lesion of the brain substance as well as of the vessels; (2) those who survive the first few hours, in whom evident signs of pressure appear. These again may be born asphyxiated (of 13 cases, 11), or else apparently normal (of 13 cases, 2). The "blue baby" born asphyxiated, is liable, *ipso facto*, to have some pial hemorrhage and must be very closely watched. Ordinarily, of course, it for the time, under proper care, recovers normal appearance, as it is always a vein that is torn and venous pressure is low. Further, the infant's brain, in its non-medullated state, being very tolerant of a diminution of space, naturally requires the effusion of a considerable amount of blood before *serious* symptoms of compression assert themselves. Thus it will be seen that it is frequently not until two or more days have elapsed that such signs do appear. These signs are at first irritative in character; the baby is restless, cries a great deal, and is either disinclined or unable to nurse. If the finger is put into its mouth there is excited no sucking reflex; it looks abnormally pale, rarely does it vomit; the fontanelle becomes tense, and pulsation in it in the later stages may quite disappear. There is a great increase in the reflex excitability of the child. Slight jars will initiate aimless movements of the limbs. Exceptionally, however, the baby will lie abnormally still, and these, Seitz believes, have chiefly infratentorial hemorrhage. Fever is not uncommon. As the condition grows worse, pallor gives way to cyanosis, and signs referable to the bulbar centers appear. Of the cardinal signs of slow pulse, irregular respiration, and high blood pressure, the latter is perhaps the most constant; in fact, slowing of the pulse is frequently lacking. The rise in blood pressure, however, is seen in strength and fullness of the pulse. Respirations are usually deep and slow, occasionally intermittent, yet often they become quick and shallow. The slow, stertorous respiration of adults is not seen, these variations doubtless depending upon the degree and location of pressure. The veins over the skull, the eyelids, and according to Cushing, in the optic discs, become dilated. The pupils are frequently unequal. As to the motor symptoms, they consist ordinarily in irregular convulsive movements indicating rather cortical irritation than its paralysis. These are most often generalized, but in the later days may become unilateral. It must be re-

membered that the clot is almost as frequently bilateral as unilateral. In fact, actual paralysis rarely, if ever, develops.

Prophylaxis. In conclusion, the writer believes the following deductions are warranted, and, in view of the very high mortality rate and the serious fetal morbidity, he would enter an earnest plea for their universal adoption:

1. The absolute necessity for the routine practice of pelvimetry and fetometry, several weeks before term when possible, and again at the time of labor, on every primipara, and likewise every multipara with the history of a dystocia or a still born child.

2. An accurate diagnosis, if possible, of the presentation and position of the child prior to labor, and certainly when labor has begun, coupled with a thorough knowledge of the mechanism of labor in contracted pelvis.

3. The cultivation of that watchful expectancy necessary for recognizing the indications for intervention when the child is in jeopardy, not forgetting the welfare of the mother.

4. A more intimate acquaintance with the indications for, and the correct application of the forceps; and the acceptance of the dictum that forceps should never be used to save the physician's time.

5. That the failure to remember that, the *sudden and prolonged* pressure of the forceps results in dangerous and murderous compression of the child's brain; and that the unskilled and indiscriminate use of the forceps is oftener the cause of intracranial hemorrhage than the rather infrequent high degree of pelvic contraction.

6. That the routine and careful study of the fetal heart sounds will eventuate in the reduction of the mortality and morbidity dependent upon cerebral compression and hemorrhage.

7. That the more general resort to episiotomy when the head is unduly compressed by a resistant perineum, will likewise reduce the number of asphyxiated and crippled infants.

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BIRTH TRAUMA IN ITS CAUSATIVE RELATION TO EPILEPSY AND INSANITY.*

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One must approach any question of trauma as a causative factor in diseases appearing as supposed sequelae with great caution, and when the supposed sequelae are diseases of such mooted etiology as epilepsy and insanity one cannot be too cautious. Rash statements and conjectures have no place in medical research and have only too often led investigators far astray.

The first question which arises is, what is meant by birth trauma. The answer is not so simple as it may appear. Life really begins with the fusion of two parental germ cells, and according to Adami and other authorities all inherited conditions occur before this moment of fusion and all conditions acting after this moment of fusion are acquired. We might, however, in view of the word birth trauma, as is generally accepted, divide causative relations in epilepsy and insanity into: first, **inherited factors**, occurring prior to the moment of conception; second, **acquired factor** occurring during gestation; and third, **acquired factors** acting during parturition.

We will assume that the words "*birth trauma*" in the title of this symposium relate only to the last or third of the above divisions, and therefore, have only to do with accidents occurring during parturition, not before and not after, and it is to this phase of the subject only that we address our remarks in this paper.

The question now arises, what are the causes of these traumata? Probably the most frequent is forceps delivery, which may cause fracture of the skull, bony depression of the skull, various cranial malformations, lacerations of cerebral tissues, or ruptured vessels with resulting hematoma and cyst.

A small or misshapen pelvic canal can produce the same accidents and injuries as forceps delivery and is liable to do so if the labor is long and the child's head is large. These two conditions practically cover birth trauma.

Children born with microcephalus and hydro-

cephalus, unless trauma can be proven in addition, should not be included under the head of birth trauma cases, as their cranial defect is developmental. Another important point to be borne in mind is that cases of epilepsy traced directly to birth injury, however late the seizures may appear and whatever their character, should be classified as Jacksonian and not idiopathic epilepsy. In truth, it is the writer's opinion and that of many others that idiopathic epilepsy does not exist and that every case of epilepsy has cerebral cell defect.

Hence, John Turner and other students of epilepsy believe that cerebral cell defect exists as a basis for the epileptic attack and that the attack itself is due to a sudden deprivation or depreciation of the blood supply by intravascular stagnation. The latter part of this view was held by Hughling Jackson in the sixties.

In the pathology of epilepsy, three points must be borne in mind: First, to have epilepsy we must have a brain structurally defective, and in birth trauma cases we usually find definite evidence of local compression, hemorrhage, or cyst formation; second, repeated convulsions may cause dilated blood vessels, increase in the neuroglia elements, atrophy of convulsions, punctate hemorrhages and local edema. Most of these changes may be noticed at autopsy or operations on cases of epilepsy. The third element in the pathology, according to Turner, is in the blood vessels, and consists of intravascular clotting, either formed by masses lying free in the vessels (which are probably an amalgamation of blood plates), or hyaline material formation, or finely granulated debris, or fibrin threads.

Surgical evidence of structural change in epilepsy supposed to be due to birth trauma is prolific and surgery offers at least a hope of amelioration of the condition, while it has always seemed to the writer that medicine is less effective in traumatic epilepsy than in other forms.

Statistics as to the percentage of epilepsy due to birth trauma are unreliable and scarce. Undoubtedly many cases of inherited epilepsy and epilepsy based upon improper intra-uterine development, have been classed as birth trauma cases, while, on the other hand, many cases having definite evidence of birth trauma

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have been overlooked, because of careless observation and because it is hard for many to believe that fits, appearing for the first time late in life, can have a birth trauma causation. There is no doubt, however, that birth trauma, is the cause of many cases of epilepsy, and that the time of the appearance of the convulsions varies from early infancy to adult life.

We should bear in mind that many cases of birth trauma of more or less severity are not followed by epilepsy or insanity and that, on the other hand, both of these conditions may appear from other causes in individuals who present evidence of birth trauma. In the study of a case we must not jump at conclusions, but take a careful history.

The writer presents an outline of a few personal cases of epilepsy which he believes pertinent to this discussion. These cases are reported very briefly and are selected from about two hundred cases of epilepsy.

Case 1: This was a female child thirteen months old with a history free from lues. She was the first child and the mother had no previous miscarriages. The labor was hard and lasted two days and two nights, and convulsions appeared just after birth and continued as frequently as four or five a day. The fontanels closed too early and at thirteen months old the child could not walk, had marked strabismus, only two teeth and distinct signs of bilateral compression. Her epilepsy was evidently due to birth trauma caused by a small pelvic birth canal.

Case 2: Was a child eight months old in whom the right temple and right side of the head was much scarred by forceps delivery. The first convulsion appeared at three months of age. The right side of the face twitched during the attack and the extremities on both sides drew and stiffened. The child when seen at eight months of age was having several convulsions a week. The scarred head and character of the convulsions led us to conclude that they were in this case undoubtedly due to birth trauma.

Case 3: Was a child, age eleven, whose mother had a long delivery, ended by the use of forceps. The first convulsion appeared when the child was three weeks old, and after having several they did not appear again until the child was six years old, when he began to have

convulsions at the rate of about four a year. This child showed partial paralysis of the third nerve and an asymmetrical head. The general picture of this case leaves no doubt as to the fact that the convulsions were caused by birth trauma.

Case 4: Was a child ten years of age whose mother had a hard labor and a forceps delivery. No convulsions appeared until the child was nine years of age. The convulsions conformed to the usual epileptic syndrome and no asymmetry or deformity of the head could be noticed. Whether the child's convulsions were due primarily to birth trauma or not can only be conjectured. However, in view of the fact that the family history was absolutely good, it would be wise to conclude that birth trauma was the most probable cause.

Case 5: Was a boy 14 years of age who had a clear family history, but whose mother had a very hard labor lasting three days. The left side of his face was decidedly underdeveloped. An X-ray examination by Dr. Talley showed that the pituitary fossa was large and shallow and that the clinoid processes were not well developed, and also that the outlines of the fossa were irregular. The boy did not show any clinical symptoms of hypo- or hyper-pituitary secretion. This boy was having grand mal attacks about once a month and a few petit mal attacks. This looks like a case of birth trauma producing a hemi-underdevelopment of the head and face as the cause of the attacks.

Case 6: Was a boy seven years of age, who also had a distinct hemi-underdevelopment of the head and face, probably from a birth compression, although no very unusual difficulty was noticed at his birth. The hemi-circumference of his head on the left side was three-quarters of an inch less than on the right. His speech was affected after each attack, which would make us suspect cell defect in the region of the speech center. The attacks were general and for three months before he came under observation, he was having one a day. The attacks began when he was eighteen months old.

Case 7: Was a boy nine years of age, who was the first child of his mother, a foot presentation, and was born after a long, hard labor. His head showed elongation in the antero-posterior diameter very distinctly. The first attack did not appear until he was nine years of age.

and his attacks consisted of unconscious spells in which there was a rotary movement of the whole body to the left, sometimes a dozen times or more. He had a fall from a three foot porch about the time the attacks began, but from the history it appears that he probably had attacks before the fall. The fall was not due to an attack but he was pushed from the porch. It is reasonable to suppose at least as a possibility that this boy's attacks were primarily due to birth trauma.

Case 8: Was a boy five years of age who was born after a hard labor. The attacks did not occur until he was four years of age. He showed no particular asymmetry of the head and it would be only conjecture to say that the hard labor produced a birth trauma.

Case 9: Was a medical student, 20 years of age, whose family history was negative and who was seen after his first attack. He had a distinct cranial asymmetry, the right side being larger than the left. We could find out nothing about the conditions of his birth, but it is reasonable to suppose that there was birth trauma because of the asymmetry.

Case 10: Was a man, age 27, whose father died of cerebral hemorrhage at the age of 40, and whose brother, Case 11, had a birth hemiplegia. This patient also had a birth hemiplegia. His first convulsion occurred when he was 24 years of age after rather a slight blow on the skull, and his attacks were very frequent. This case is of interest because it is more than probable that the blow would never have caused epilepsy if he had not had the birth hemiplegic condition.

Case 11: Was a man 24 years of age, brother of Case 10, who also had a birth hemiplegia and whose attacks began at six years of age. This man died at 25 years of age in status epilepticus. His birth trauma was the most probable cause of his epilepsy.

Case 12: Was a man, 26 years of age, whose mother had a hard labor at his birth. He had to be resuscitated at birth. There was no marked asymmetry, and epilepsy did not begin until he was 25 years of age. However, at 12 years of age he became slow mentally and did not do well at school and his memory was noticed to be defective. One cannot quote this as a case of birth trauma causing epilepsy, but the history of the hard labor and of delicate infancy makes

us suspect a brain cell defect which began to show in his mentality at puberty and developed into epilepsy.

Case 13: Was a man, age 26, who was born after a hard labor and whose mother died at the birth of another child. The patient also had one brother who had epilepsy. The patient's cranium was distinctly asymmetrical. He had no convulsions as a child but was backward at school and his first attack appeared when he was 20 years of age, since which time he has had ten or twelve a year. This case is interesting because it gives a distinct history of hard labor, and cranial asymmetry is still noticeable, and his attacks did not begin until early manhood. The history of epilepsy in the family, however, makes us uncertain as to whether his attacks could be traced to birth trauma or to hereditary influence, unless, indeed, his brother had birth trauma, which could not be ascertained.

Case 14: Was a boy, 11½ years of age, who was delivered by forceps and who had convulsions for weeks after his birth. He also had a congenital hemiplegia of the left side. At 11½ years of age he was having frequent convulsions and his head showed marked elevations and depressions. One depression in the mid-frontal region of the left side was very marked. It was decided to operate, and Drs. Johnston and Willis made an osteoplastic flap and found a cyst about the size of a hen's egg. This was evacuated and the wound healed promptly. Since the operation, some six months ago, the patient has gained much better use of his arm and leg, has become considerably brighter mentally and his attacks have been very much less frequent and have not gone to complete unconsciousness as did the attacks before the operation. At the time of the operation it was noticed that the convolutions were much flattened and pushed wide apart by the cyst. The boy is improving all the time and it is believed that the convolutions are coming together and that the cyst is not reforming. The whole picture of the case is that of birth trauma.

Case 15: Was a man, age 26, who had a birth hemiplegia after a hard labor. At eight years of age he began to have attacks which began on the right side and became general. When seen, he was having one or two attacks a week. There was considerable cranial asymmetry and Drs. Johnston and Willis operated on him

during May, 1911, putting a silver plate over the bony aperture. The man's hemiplegia improved to some extent, and instead of one or two attacks a week they became six or eight months apart. At the time of this operation a cyst about the size of a pigeon's egg was found on the left side in the motor region.

We may gather a few important points from the brief description of these cases and make a few pertinent deductions. They show, we believe, that a birth trauma can and does produce epilepsy, that the attacks may appear many years after birth, that in many instances definite cranial lesions and asymmetry may be found, and that surgery is of marked benefit in some cases. We may deduce that Cesarean section on the mother might have prevented some cases, that long, hard labor is conducive to birth trauma epilepsy, that we should not look lightly upon the scars of forceps and that early operations in these cases before cranial ossification completely took place might have been of great preventive or curative value.

In the consideration of birth trauma as a causative factor in epilepsy and insanity, there are certain general underlying principles. For instance, no person can have a genuine epileptic fit without a brain structurally predisposed, and in the writer's opinion no person can become insane who has not an hereditary basis in which we may believe the brain cell conformation is abnormal, except the forms of insanity due to auto- or induced toxemia. In other words, no person with a normal brain can have an epileptic fit through indiscretion of diet, excitement, reflex or other incidents. Of course, injury causing a Jacksonian attack is not included as this would render the brain abnormal.

In regard to insanity, no person with a normal brain, no matter what the shock or stress to which such a person is subjected, can become insane except by being poisoned through such autogenic agencies as ductless gland disease or the toxemia from diseases of the blood, intestinal tract, etc., or by the intake of poisons, such as lead, opium or alcohol.

In the past, reports of brain surgery on cases of epilepsy, except the Jacksonian form due to easily demonstrable trauma, are not encouraging. Is not this due to the fact that many of the operations which have been performed on

epileptics have been done on old cases in which conditions have so far advanced that no known treatment offers any particular hope? The condition may be analogous to abdominal surgery of some years ago when an operation was rarely attempted until peritonitis had set in and when the mortality was correspondingly high. If brain surgery is instituted in epilepsy of birth trauma origin early, the reports would probably be much more encouraging. For instance, if birth trauma cases were operated upon and the cranial depression remedied or an hematoma removed, many cases of epilepsy might be prevented, or if the operation was done immediately after the first fit, recurrence might not appear.

The first attack of epilepsy is usually not given enough consideration and it is rare that either the neurologist or the surgeon sees a patient until several or many attacks have taken place. The patient is usually told that the convulsion was due to indiscretion in diet, excitement or over-exertion. A purgative is usually given and the condition not thoroughly gone into, or treatment instituted, until other attacks have occurred, when it becomes manifest that the first convulsion was really an epileptic attack.

Very little has been said in this paper about birth trauma as a cause of insanity, chiefly because the writer has been unable to fix in his mind definite cases of insanity which he believes to be clearly due to birth trauma, although such a condition is conceivable. We do not refer, of course, to the cases of insanity due to birth trauma epilepsy.

Epilepsy is a very dread and common condition. It has been reported that there is one case of epilepsy to every 490 of the population of the United States. A considerable percentage of these cases are evidently due to birth trauma. We are just beginning to realize that something more than bromide treatment can be done for epileptics. Some recent cases radiographed for me by Dr. D. D. Talley have shown definite changes in the conformation of the sella turcica, and we occasionally have seen a case markedly benefited by the administration of pituitary gland extract.

In a paper just published, Clark and Sharp (*Journal Nervous and Mental Diseases*, October, 1913), make a comparative study of epi-

lepsy occurring in children with infantile cerebral palsy and the so-called idiopathic type in children as regards the hereditary factor in both groups. This study was based on 443 cases of each group. They found the hereditary factors of epilepsy, alcoholism, insanity, feeble-mindedness, etc., present only slightly less often in the palsied group than in the non-palsied group, and believe "that the prognosis as to a sequential epilepsy following in the wake of a given case of infantile cerebral palsy should be based upon the presence and degree of spasmophilic or simple neurotic history, and that this latter fact should be given as much or even more weight than the site, nature and degree of the initial cerebral injury as expressed in the palsy."

This statement from experienced investigators and eminent students of epilepsy must make a profound impression, but still one may feel that they have somewhat overstated their case, and their paper admits a preponderance of convulsive attacks (seventeen cases more), in the ancestry of the non-paralytic cases.

It is well to be conservative, but it would have been criminal foolishness if the *Carpathia* had sailed away from the *Titanic's* wrecked mass of humanity, and because she could not save them all not have saved a few.

Studying the diseases from the birth trauma viewpoint, we believe that many more cases will be cured in the future by surgical means, especially if the general practitioner will co-operate and have thoroughly investigated and intelligently treated every case of birth trauma and every case of epilepsy immediately after the first convulsion. By doing this, he not only intelligently and scientifically handles the case itself, but he oftentimes may relieve the family from the idea that all epilepsy is hereditary and that the occurrence of a case is a family stigma, when in fact it may be due to a faulty birth canal or to unfortunate birth manipulation.

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SURGICAL ASPECTS OF BIRTH TRAUMATA.*

By CHARLES H. FRAZIER, M. D., Philadelphia, Pa.

Perhaps the most important, because of its frequent recurrence, of the injuries attending

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the delivery of the child are the intracranial hemorrhages of the new born. In Wyder's Clinic from 1901 to 1910 there were 14,659 deliveries with a mortality within eleven days of 8.71 per cent., and of the fatal cases over 2 per cent. were found at autopsy to have had a subdural hemorrhage. It is not my province to discuss the various factors which play a part in the etiology of this condition. Suffice it to say that they are varied, and a majority at least are not as popularly supposed the result of instrumental delivery. Perhaps the most significant feature of intracranial hemorrhage of the new born is the fact that the hemorrhage is almost invariably subdural, in contradistinction to adult cranial hemorrhages which are for the most part extradural. This distinction is probably due to the fact that in infants the dura is much more closely adherent to the skull.

Of practical consideration is the source of the hemorrhage and its relation to the pre- and subtentorial fossa. I am quite convinced, and this view is confirmed by the majority of observers, that in pretentorial cases the large pial veins which empty into the longitudinal sinus near the coronal and lambdoidal sutures are the most common source. By compression of the head, overlapping of the bones of the cranium readily tears the veins, which in infancy are not protected as in adults by bands of tissue extending from the sinus. In some cases, laceration of the longitudinal sinus, in some, of the transverse sinus together with the tentorium cerebelli, and in some, laceration of the brain substance itself is responsible for the hemorrhage. A very significant factor, and to my mind the most serious obstacle to recovery and to freedom from sequelae is the fact that in the vast majority the lesion is bilateral. So far as I know, however, there is no means of determining the exact distribution of the hemorrhage except from autopsy records in which it appears that the clot is more apt to spread over the parietal rather than the occipital or frontal lobes, and into the middle rather than the anterior fossa at the base, although in not a few cases the clot is much more diffuse and may envelope the entire hemisphere.

The crux of the whole situation in so far as concerns surgical intervention would seem to lie in the determination of the location of the hematoma. A definite advance was made in this

direction when the symptom-complex concomitant to peribulbar or subtentorial hemorrhages was differentiated from that which we have come to associate with the pretentorial variety. Accompanying the latter, we find extreme restlessness and spasm, rigidity of the extremities, epileptic-like twitchings of the face, arms, and legs, lowered pulse and respiration, rapid rises in temperature, increased reflexes, bulging of the fontanelles, and widening of the lambdoid suture, narrowing and later widening of the pupil on the affected side (in cases of unilateral hemorrhages), and in some cases paralysis of the facial, hypoglossal and accessory nerves, subconjunctival and palpebral hemorrhages, edema of the eyelids and proptosis. The child cries and screams almost ceaselessly and for no apparent reason. This inexplicable screaming is pathognomonic and is due probably to dural tension. Hemorrhages in this locality are more easily recognized than those situated below the tentorium by the disturbances of the cortical motor region. In pretentorial lesions, lumbar puncture is of no avail as a diagnostic measure, but puncture of the subdural space through the outer corner of the large fontanelle is often of positive value. With the peribulbar type, the baby is usually in a somnolent condition with cyanosis of the face, head, and hands, pulsating fontanelles, irregular breathing, and sometimes convulsions. In these cases, a lumbar or cervical spinal puncture will usually elicit signs of hemorrhage. Abels (*Archiv. f. Gynaekol.*, 1913, xcix, no. 1) has recently described two cases of intrapartum ventricular hemorrhages which have come under his observation. He feels that the differential diagnosis between intracranial hemorrhage and tetanus is extremely difficult, the main differences being the manner in which the spasm spreads, the absence of rigidity of the back of the neck and opisthotonos in hemorrhage, and the earlier development and increasing intensity of trismus.

Of considerable moment in the differential diagnosis between infra- and pretentorial hemorrhages is the time at which the symptoms first manifest themselves. In the latter, there may be an interval of several hours or several days of freedom from symptoms, whereas in peribulbar hematomata the influence of pressure appears more abruptly and at shorter intervals. To be sure, there are exceptions to this general

rule, but when one sees a case in which asphyxia is an early and conspicuous symptom and blood stained fluid is recovered on spinal puncture, the evidence is strongly presumptive of hemorrhage in the posterior fossa, whereas the presence of motor phenomena, rigidity, convulsive seizures, often of unilateral distribution, is significant of hemorrhage over the hemispheres. The greatest confusion will arise when hemorrhage from both sources is present, as under these circumstances the picture of one may obscure that of the other.

It is not alone sufficient, however, to distinguish between pre- and subtentorial hemorrhage, but also to ascertain whether in pretentorial cases the hemorrhage is unilateral or bilateral. For diagnostic purposes, the use of the exploratory needle and cannula may be of the greatest service, and I am inclined to believe that in all suspicious cases one should resort both to lumbar puncture and to puncture of the subdural space, not on one but on both sides. This may readily be done by introducing the needle at the outer angle of the anterior fontanelle first on one, then on the other side, directing the needle backwards beneath and parallel to the parietal bone, and if this be attended with negative results, one should puncture through the posterior fontanelle. Bear in mind, however, that a negative result does not always indicate the absence of hemorrhage, as when the hematoma is firmly clotted one fails to recover blood stained fluid.

No matter what method be adopted for the relief of this condition, the mortality will of necessity be high. While all cases originate in the hands of the obstetrician, the majority remain there, and the surgeon is seldom called in. Though a small percentage of cases have recovered following more formidable procedures, the first and foremost indication is to relieve pressure, and an attempt to do this should be made at once with the needle. In subtentorial hemorrhage, aspiration may be most effectively practiced between the second and third cervical vertebrae, and when the blood is still fluid the results are exceptionally good. In pretentorial hemorrhages, an attempt at least should be made to relieve the symptoms by aspiration, and the necessity for a resort to a formal craniotomy may be altogether arrested. The fact, however, that in many cases the hematoma is too

firmly clotted for aspiration, and the fact that the source of hemorrhage is still uncontrolled often necessitate further intervention. This consists in the reflection of a flap, so outlined as to uncover the central fissure, and of sufficient dimensions to enable the operator to determine the size and extent of the hematoma. Simons was able through a comparatively small opening at the outer angle of the anterior fontanelle to evacuate the clot and two of his patients recovered. After the removal of the clot the source of hemorrhage should be ascertained and suitable measures adopted for its control. Ligation of the pial vessels is a matter of considerable difficulty, particularly in infants, and I have used with signal success and with great satisfaction the application of a small sliver of muscle to the bleeding point. This will control hemorrhage of this origin in a few seconds almost inevitably. Of the cases recorded in literature, Henschen (*Archiv. f. klin. Chir.*, 1912, Bd. 98) estimates the immediate operative mortality at 56 per cent. This, however, should not be considered prohibitive in a lesion which is of itself either fatal or attended with grave sequelae.

The ultimate prognosis, so far as I know, has never been recorded, and this to my mind constitutes the really grave aspect of this problem. While in the operative cases one may succeed in removing the blood clot sufficiently to relieve intracranial tension and thereby avert death from pressure, the fact that in many instances hemorrhage is diffuse and bilateral makes it probable that there may still remain here and there clots not necessarily of large dimensions, which may seriously impair the future development of the delicate cells of the cortex and serve as the source of irritation for subsequent epileptic seizures.

This leads me to the consideration of the late effects of intracranial hemorrhage of the new born. In this connection, although not altogether germane to the question, mention might be made of the hemorrhages, usually of infectious origin, which occur in childhood, and lead ultimately to a train of disasters not unlike those following hemorrhage at birth. In a paper presented to the American Surgical Association in 1906, I called attention to the frequency with which it had been shown that hemorrhage not of traumatic origin had preceded the develop-

ment of epilepsy in children. In respect to the character of the sequelae and the character of the structural changes in the brain, the hemorrhages of infancy and childhood have much in common.

A perusal of my volume of case records reveals a number of instances in which children have been brought to me for an opinion as to the relief to be derived from surgery. These children are mostly epileptics; some have hemiplegias and not a few are mental defectives of high or low grade. There is in quite a few a history of a prolonged instrumental delivery with a syndrome suggestive of hemorrhage. The following is typical of many that I am constantly seeing: There was an instrumental delivery and immediately after birth there was a history of cyanosis and respiratory difficulties. The child cried almost incessantly, and was extremely irritable for several months. When six months old, the mother noticed a weakness in the left arm; at the age of four the child developed epilepsy, and from that time on to the present—now her eighth year—there has been a gradual transition into a state of feeble-mindedness, bordering on idiocy. There was no doubt at all in my mind that in this case the source of trouble was an intracranial hemorrhage. In others, there is in later life a history of an acute illness, often an infectious fever, an illness characterized by fever, vomiting, delirium, loss of consciousness and convulsions.

What should be the surgeon's attitude with regard to the late effects of intracranial hemorrhage whether at birth or later in life? When the surgeon is consulted there is one of three conditions: spastic hemiplegia, or monoplegia, epilepsy, and mental defectiveness of varying degrees. These may exist separately or, as is often the case, two or three may be combined in the same case. The mental defective of high or low grade presents no surgical aspects, and yet the surgeon is frequently consulted and often plead with by the parents to operate no matter what the risk or how infinitesimal the chances of recovery. For various reasons and especially when there are other children in the family, the feeble-minded child should be committed to appropriate institutions where, if properly managed and equipped, the child will receive training such as is not possible at home except in families of the well-to-do. But one finds a na-

tural but stubborn prejudice on the part of parents, difficult to overcome, and yet the custodial care of the feeble-minded is of the greatest economic importance. The hereditary influence of feeble-mindedness is so great that the only effective means of controlling the alarming increase and of preventing the rapidly growing burden on the State's resources is custodial care and institutional restraint.

When we come to consider spasticity, an entirely different problem presents itself. This opens up the discussion of the value and the indications for section of the posterior roots of the cord. As you all know, this operation is based on substantial physiological grounds and has already passed beyond the developmental stage and should be regarded as an established procedure. There is no doubt at all but that division of the posterior roots of the cord does relieve spasticity. I will not try your patience with the recital of case records to substantiate this statement. Suffice it to emphasize certain features of the operation which experience has taught me are worthy of attention. In the first place, it is not wise to apply this operation to the relief of spasticity in children of unsound mind. The after-treatment, which includes a re-education of the muscles, hitherto handicapped, requires an intelligent co-operation on the part of the patient which is not possible in the defective. Again I should not advise the operation for the relief of spasticity of the upper extremity. For some reason or other section of an equal number of roots in the cervico-dorsal region is not attended with results at all comparable with those of the dorso-lumbar region, and the end-results in the upper extremity scarcely justify the procedure. It may be that the elaboration of Stoffel's method, the selective and partial division of the peripheral nerves, may prove a valuable substitute for dealing with spasticity in the upper extremities. Stoffel called attention to the uniform arrangement in a given trunk of its component muscular branches and recommended the division of that portion of the nerve containing branches to the affected muscles. In this way, a proper balance may be restored to the antagonistic muscular groups. I have confirmed some of his anatomical observations and have utilized the principle in the treatment of certain isolated muscular palsies. But in spasticity of the lower extrem-

ities the propriety of root resection in selected cases should be unquestioned. The selection of cases depends somewhat upon the residual muscular power. By that I mean that when there is an extreme degree of muscular atrophy, restoration of function, the ability of the patient to locomote with any degree of satisfaction should not be anticipated even though the spasticity be overcome.

There are many points in the actual performance of the operation which are of interest to the surgeon. Of these, selection of the roots to be divided is the most important. Generally speaking, at least five roots should be severed, and the best combination is the second and third or the second, fourth, and fifth lumbar, and the first and second sacral. Unless fairly familiar with the topographical anatomy of these structures, the identification of the roots is not an easy matter, and the adoption of means of preventing shock is of the utmost importance. I have performed this operation a number of times, and have found that it requires extreme patience and delicacy of manipulation in order to avoid undue trauma to the cord and anterior roots, and in order to prevent shock. You may be disappointed in the results unless provision can be made for a course of exercises which must be persisted in for months in order that the muscles may be re-educated to a state of reasonable efficiency.

There remains finally for consideration the problem of the epileptic. This is a perplexing one beset with many difficulties and disappointments. I would not mention the impropriety of operating upon patients, in which the convulsive seizures are general and not focal in character, were it not for the fact that this view is not universally held. But experience has taught me that in this class the ends do not justify the means. Nor will I operate in cases of several years' duration where the epileptic habit is firmly established. But I do operate occasionally in cases of the Jacksonian type where the seizures are distinctly focal and where the motor phenomena are more pronounced than the psychic. In these cases, there is a reasonable chance of finding a focal lesion, the precise seat of which can be determined by the character of the seizures. How effective the operation may be depends upon the extent and character of the lesion. In some cases, one will be disappointed

to find what appears to be a perfectly normal cortex, but more frequently will there be an adherent dura, or a cyst often as a feature of a porencephalus. With the latter, the structural changes in the brain, the grave developmental defects dating to birth, are of such a character as to preclude the possibility of relief by surgical intervention. It is extraordinary how extensive the lesion may be without any material evidence other than the epileptic seizures. The most that can be said of surgical measures is that in the exceptional case, the removal of that portion of the dura adherent to the motor cortex or the evacuation of a cyst may prove beneficial. Rarely are the attacks altogether interrupted; more often are they reduced in frequency and severity. Wholesale resort to operation in epileptic subjects should be unqualifiedly condemned, intervention being reserved only for a group selected along the lines I have already indicated.

In summarizing my attitude toward the problem of the treatment of the early and late effects of intracranial trauma, I should urge a more serious attitude on the part of the profession in the hope that more cases will be recognized and the surgeon more frequently consulted in the incipency. While the mortality is high in the early operation, the chances of the child becoming an epileptic or an imbecile if the condition be overlooked or neglected, are so great that radical surgical procedures are fully justified,—nay, should be welcomed. The clinical picture is so clear and sharp cut that there is little excuse for overlooking the condition. The most reliable evidence is derived from puncture of the subdural span in various localities as above mentioned. Relief of pressure and the tiding over of a critical situation is possible by aspiration, though more radical procedures may have to be resorted to afterwards. The prognosis should be guarded in so far as the development of sequelae is concerned.

Feeble-mindedness, spasticity and epilepsy, separately or collectively, are the dreaded consequences. For the first there are no surgical indications; for the second section of the posterior roots of the spinal cord is a remedial measure not to be ignored; for the third certain benefits are to be derived in selected cases by a carefully planned and executed craniotomy.

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SOME PRACTICAL POINTS IN ANESTHESIA.*

By WILLIAM L. GATEWOOD, M. D., Petersburg, Va.

In taking up this subject, I will try to present some of my impressions on the correct use of chloroform and ether. No doubt my observations and conclusions will have to be modified in many details by the experience of others. I shall merely voice a simple and coherent working theory which has gradually forced itself upon me as my views on the practice of anesthesia have become a little broader and more comprehensive.

First, and of paramount importance, the anesthetist should make an endeavor to gain the confidence of the patient. This should not be overlooked, as nothing helps so much as to relieve the patient's mind in this respect. Patients of a placid and equable temperament are, as a rule, much easier to anesthetize than excitable and neurotic persons. In anesthetizing sensitive and fastidious subjects, considerable judgment and tact may be needed.

In my experience I have found that the proper method of starting anesthesia should be as follows: Place the dry cone on the patient's face and ask him to breathe a number of times, assuring the patient that it is not very disagreeable. After doing this for about half a minute, then begin slowly to drop the anesthetic on the mask drop by drop. Never have chloroform or ether on the mask before putting it on the patient's face, and avoid giving it rapidly until the patient is unconscious.

Before the stage of unconsciousness is reached, the patient may begin to cough. Do not remove the mask for if you do the patient will wake up about the time the cough stops; if the mask is not removed, the patient will usually cough several times until the reflexes are abolished and then go quietly to sleep. Carry the patient to the stage of anesthesia desired, and then give the drug steadily but slowly by the drop method until the operation is completed.

In the initial stage of anesthesia the patient will sometimes fail to breathe. The mask should not be removed, but the anesthetist should instruct the patient to breathe; then, if they do not, he should drop a small amount of ether on the lower part of the anterior neck which

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usually causes them to begin breathing. It is unnecessary to give artificial respiration until the patient has stopped breathing for about three minutes. Of course if the patient is in the surgical stage, it is an entirely different proposition. In that stage you should lose not a second in removing the mask, giving artificial respiration, pulling up the tongue and bringing the jaws forward, dilating the sphincter, and rubbing the fingers over the upper lip, etc.

The patient's head should not be kept perfectly straight but it should be turned to the side, preferably to the right, and if this is done the jaws will usually stay forward, but if necessary, support the jaws. Do not, however, make undue pressure on the angles as a parotitis may result from the traumatism.

The surgical degree, the stage of complete anesthesia, is announced by the respiration when it assumes the more or less well-marked snoring character of one who is fast asleep.

In order to conduct a narcosis scientifically, one must know the signs of sufficient anesthesia and the signs of awakening. The respiration is studied by watching the movements of the chest or abdomen, by placing the hand in the vicinity of the nostril to feel the respiratory current of air, or, best of all, for the respiration is rarely noiseless, by listening to the breathing. Any change in the quality of the breathing compels the question, "Has the patient escaped from the proper surgical plane?" or "Is the anesthesia too deep or too superficial?" or "Is the change simply a respiratory reflex induced by the surgeon's manipulations?"

The color of the ear is a most useful guide. Even a slightly bluish tinge of the ear demands attention. Usually "crowding" is the cause, and a little more air allows the normal red flush to return. Slight pallor developing during the course of the narcosis should always be regarded as a danger sign. It means that the patient is in profound anesthesia, and that the heart is threatening collapse. The mask should be removed promptly and the patient allowed to breathe pure air. As long as the pulse is not weak or irregular, one need not worry about the outcome. There are some advantages in choosing the temporal pulse as the guide, instead of the radial pulse, which is ordinarily followed; occasionally the temporal can still be felt when the radial has become impalpable. The pulsation of the temporal artery is best felt by placing

the index finger into the depression at the root of the ear. The pulse is important because it tells how the heart reacts towards the anesthetic and the surgeon's manipulations. The frequency is not very important. It may be one hundred and twenty or a hundred and thirty during the greater part of an anesthesia without vital significance, if the quality is good. A diffuse and weakening pulse is a signal that the narcosis is too profound, and that the heart is in danger of collapse. A somewhat irregular pulse may immediately precede or accompany the act of vomiting, and it is not a cause for alarm.

Accessory to the respiration, color and pulse, but of lesser significance, are the pupil, the cornea and eyelid, and the secretions. A wide pupil which reacts promptly to light indicates superficial anesthesia; the patient may need more of the anesthetic. A wide pupil which reacts to light sluggishly or not at all means that the danger line has been over-stepped; the anesthesia is too deep; the patient must have air. Without knowledge of the reaction, every markedly dilated pupil should be looked upon as prognostic of danger.

To touch the cornea repeatedly with the finger for the purpose of obtaining the corneal reflex is a bad habit. The reflex can be tested just as satisfactorily by shifting the upper eyelid gently across its surface. A very useful indicator of the degree of muscular relaxation is, I believe, the tonicity of the eyelid. The usual arm test is very misleading. Flexing the elbow once or twice may give the impression that the muscles are thoroughly relaxed, and yet, on repeating the manipulation five or six times, one may be surprised to obtain a sudden powerful contraction of the biceps, showing that the patient is still not fully under the influence of the anesthetic. Normally the upper lid has a certain tonicity; if it is lifted gently by means of the finger, it springs back to its normal position promptly. When the patient is fully under the influence of the anesthetic, this tonicity is partly or completely lost and the lid returns sluggishly to its natural position, or not at all. The patient can usually be kept in a proper surgical plane by increasing the amount of anesthetic each time as the tonicity returns, and decreasing it when relaxation of the eyelid is obtained.

When the patient is under anesthesia to the

surgical degree the activity of the salivary, sweat and tear glands ceases. The accumulation of mucus in the mouth, the appearance of a tear in the eye, beads of perspiration on the brow, all mean that the anesthesia is becoming superficial, that more anesthetic is required.

It is worth bearing in mind that these indicators of the depth of narcosis do not in all individuals react in exactly the same way. While beginning the anesthesia the anesthetist can get his bearings in regard to this point, and watch for any individual idiosyncrasy which may exist. It is unsafe to concentrate the attention on one sign lest the general aspect of the patient be overlooked. The anesthetist watches constantly the rhythm and quality of the breathing, the color of the ear, and the character of the pulse. From time to time, only as occasion demands, he refers to the accessory signs for confirmation. Should he, at any time, be in doubt about the depth of the narcosis, the first step is always to desist from giving more of the anesthetic until he has regained his bearing or the signs of awakening are recognized.

Many anesthetics are unsatisfactory because the breathing is obstructed. To my mind, the prime cause of obstructed breathing is too great a concentration of the anesthetic. The importance of avoiding the crowding of the anesthetic is the secret of a good narcosis. The irritability of the air passages varies greatly in different individuals. Concentrated vapor frequently causes reflex-spasm of the larynx and consequently obstructed breathing. Undue concentration rather than excessive quantity of the anesthetic usually causes this. Sometimes, however, the obstruction is purely mechanical. It may be due to compression of the trachea by a shoulder brace.

In aged individuals after removing the tooth plate, progressively increasing cyanosis may be due to valve action of the lips. Expiration is unhindered, but inspiration becomes impossible on account of the collapse of the lips and cheeks. The difficulty is overcome by turning the head to one side and placing a piece of gauze in the dependent angle of the mouth to keep the lips apart. There are other cases in which the base of the tongue drops back into the oro-pharynx and hinders breathing. There is a peculiar noisy "fluttering" respiration which indicates this condition. Pushing the jaw forward is often insufficient. In such an emergency it is neces-

sary to make use of the mouth-gag and tongue forceps. A soft rubber catheter passed through the nostril into the pharynx sometimes instantly relieves the obstruction.

The typically healthy patient is by no means necessarily the best subject for a general anesthetic. It is a popular idea that because the heart sounds are normal and the patient's general condition appears good, the anesthesia will run a perfectly normal and straight-forward course. On the contrary, the best subjects are to be found amongst comparatively feeble persons. It is of course true that asthenic subjects, and those with morbid states of the heart or lungs will not be able to hold out against any given strain as long as stronger persons. It is a curious and important fact, however, that patients whose general condition is unsatisfactory are usually far more tolerant of a comparatively light anesthesia than vigorous subjects. Whilst a healthy child or adult may require large quantities of the anesthetic in order that inconvenient reflex movement or abdominal rigidity may be prevented, the chronic invalid, the bronchitic, or asthmatic sufferer, or the patient with an advanced degenerated vascular system, will often remain completely passive to surgical procedures even though a brisk lid reflex be present.

Sex has a distinct, though probably indirect, influence upon the effects produced by general anesthetics. Women certainly pass more easily than men into deep anesthesia—a fact which may be explained by their physique being as a rule inferior to that of men. Men with feebly developed muscular systems take anesthetics very much in the same manner as women, and women of masculine type display similar symptoms to those of men.

Age has of itself no intrinsic influence in modifying the effects produced by anesthesia. It is rather the presence at different periods of life of different physical and other conditions which must be considered. The invariable use of chloroform, for example, for patients between certain ages, and of ether for patients at other periods of life, cannot be regarded as rational. General anesthetics may be given to patients of all ages.

A few words may not be out of place concerning the general management of children about to be anesthetized. Kindness, gentleness, and good temper are important elements in the

success of these cases. Children should never be deceived. The less said to them by their relatives and friends the better. The alarm sometimes displayed by these little subjects is almost invariably due to the misguided action of sympathetic parents and friends who, by their unusual conduct, have betrayed their apprehension. On the day of the operation there should be as little deviation as possible from the child's usual routine. The relatives and friends should be persuaded to absent themselves immediately before and during the administration. A little "wholesome neglect" is often an excellent prescription both before and after anesthesia. When, as sometimes happens immediately before an anesthetic is given, a child is surrounded by an agitated crowd of relatives, all speaking at the same time, a state of alarm is not unlikely to occur. It is quite unnecessary to tell children beforehand that anything unusual is about to happen; but with intelligent children of six and upwards, it is often a good plan to say that they "are going to have something to smell which will make them better" or "take away their pain."

Although chloroform is apparently better borne than ether by children, it nevertheless possesses certain special disadvantages in these subjects. Children are occasionally placed in considerable peril by chloroform, and more fatalities under this anesthetic have been recorded than might be imagined. Chloroform frequently induces an extremely tranquil and sleep-like respiration which deprives the anesthetist of the most important means of knowing how deeply his patient is anesthetized. This reason is alone sufficient to warrant us in the use of ether for very young subjects. Moreover, the experience of recent years would seem to indicate that chloroform is far more likely than ether to be followed by certain peculiar toxic after-effects.

Until very recently it was generally held that chloroform could be administered with impunity in obstetrical work. We now know that this is not the case, but that in rare instances symptoms of poisoning may set in several days after delivery and lead to death. The investigations of Howland and Richards upon pregnant dogs show that the process consists essentially in an autolysis of the hepatic cells, which may lead to almost total destruction of the secretory portion of the liver. In extreme instances the cells oc-

cupying the center of each lobule are completely destroyed, so that only a margin of approximately normal cells is preserved at the periphery. Associated with these changes is a pronounced perversion of metabolism. In view of our present knowledge, it behooves us to inquire whether we are justified in continuing to use chloroform as an anesthetic. I believe that it may be safely employed for ordinary obstetrical anesthesia, but it should be replaced by ether whenever the operation and its preliminary preparation promise to last for longer than one-half hour.

In the Lying-in Hospital of the City of New York, chloroform was formerly freely used in the treatment of eclampsia, but, in view of its well-known deleterious action upon the liver, ether has been substituted. In witnessing several clinics in this institution last fall I was much surprised to find that ether was being used exclusively.

Anesthesia is a science which deserves more attention. The extensive use of ether and the experience that its incautious administration is fraught with but little immediate danger, has gotten the hospital interne into reckless habits in its administration. His attitude here has a tendency to prejudice the minds of general practitioners against ether as an anesthetic. Hence, they are in this way so frequently driven to use chloroform, a narcotic many times more powerful than ether. One so frequently hears the average general practitioner say, "I would use ether but I do not know how to administer it." Yet in the hands of the inexperienced, and above all, the inattentive, chloroform is certainly a more dangerous drug than ether. But this does not detract from its great value as an anesthetic, and it would be illogical to condemn its use.

In the aged and bronchitic subjects, we know it is not so much the operation itself as the broncho-pneumonia that often follows the anesthesia that deserves grave consideration. Chloroform, or a chloroform-ether combination, is undoubtedly in such cases preferable to pure ether, because it causes less bronchial irritation.

In conclusion, I wish to say that I have no hopeful word for the anesthetist who is inattentive. Whether the case is an apparently simple or a critical one, it should be remembered that the good anesthetist, like the good surgeon, is he who, besides being competent, has a conscience

and feels his responsibilities, who appreciates that there are some who are anxiously awaiting the outcome, and have a deep interest in the life that is in his hands.

HEREDITY—EUGENICS.

By J. W. WILLIAMS, M. D., Richmond, Va.

HEREDITARY ALCOHOLISM AN UNDENIABLE FACT.

"To our parents who called us from nonexistence into being, we owe everything. Not to gratify the lower nature do people beget children since the streets and brothels are full of the means of gratifying such base passions; but we look to what sort of women * * * * * for these bear the finest children."—Zenophon's Memorabilia, B. 11., C. 11., Sec. 4-5.

"Alcoholism strikes a man not only in his own person, but also in his own descendants."—Dr. Lundir, Paris.

"Man scans with scrupulous care the character and pedigree of his own horses, cattle and dogs, before he mates them; but when he comes to his own marriage he rarely, or never, takes any such care. On the other hand, he is strongly attracted by mere wealth or rank. Yet he might by selection do something not only for the bodily constitution and frame of his offspring, but for their intellectual and moral qualities. But such hopes are Utopian until the laws of inheritance are thoroughly known."—Darwin: "Descent of Man," p. 706.

God will visit "the iniquity of the fathers upon the children unto the third and fourth generation."—Moses. Ex. XX:5.

Possibly, the thought in the above quotation, from the "Recollection of Socrates," was caught from the lips of the philosopher by Zenophon while his pupil in the Grove of the Academy, under the very shadow of the Chrysalaphantine statue of Minerva that graced the brow of the Acropolis at Athens. This was surrounded by squares, acres, indeed miles of statuary and sculptured marble, bronze, ivory and gold, which attested the poetic taste and age of Pericles under whose rule Athens rose in sculptured grandeur, the wonder of all succeeding ages. The high ideal of intellectual strength and physical beauty that inspired the Greek mind seemed for a time to have restored the lost image of humanity and, chiseling it in

beautiful marble statuary of grace and love-lines, lifted it up—the admiration of the world. Students of all nations yet gather around the feet of these Greek masters, who, though dead, yet speak to us in all the Universities and Colleges of earth; and sculptors vie with each other in producing the nearest approach to their elegant models of the human form, that seem yet instinct with life and beauty as we gaze upon them. This is one of the earliest allusions to heredity and eugenics found in the heathen world.

For many years it has been recognized by breeders of horses and dog fanciers that the effects of heredity are undeniable. We are indebted to Sir Francis Galton, F. R. S., for the term "Eugenics." The first Eugenic Congress has just been held in the University of London, presided over by L. Darwin, son of the great evolutionist. "It was organized to spread the knowledge of the laws of heredity—the science that deals with all the influences which improve the unborn qualities of a race with traits that are in the blood—the protoplasm." Four hundred delegates were present from all nationalities. As seed is more important than cultivation, so are the healthy hereditary germ cells (spermatozoa and ova) of more importance to the race and to society than culture and refinement. Children represent the life and vitality of their parents. All facts show that the antecedent vitality of parents and even grandparents influences the life of a child. To be "well born" is not to be born in "high society" or to riches or born to inherit one or all of the crowns of Europe, but at least one or two generations of healthy, normal parents must precede such birth—the ancestral germ cells must be free from contamination.

The testimony of medical and sociological science corroborates the statement of the great Hebrew law-giver that the "iniquity of the fathers" affects their children, under the laws of heredity, to the "fourth generation." The father is the trustee of the germ cell, and the healthy germ cell is more important to his child than "high society" culture and refinement. Every young man should have this fact taught him at home and in school, and it should be the first article of his social creed.

Every life, vegetable or animal, at its origin, passes through a germinal phase of existence

and is modified, negatively or positively, by the unhealthy or healthy condition of the germ cells. The original protoplasmic cells (spermatozoa and ovum) which unite to form the beginning of the future child consist of a highly endowed protoplasm, possessed of the function of "development," thereby surpassing the powers of all other cells of the human body. Now, these germ cells may be initially healthy or diseased, feeble or devitalized, as they start upon their journey of life with pure or impure blood from either one or both parents. In thousands of instances they have been injured by protoplasmic poisons—syphilis, tuberculosis, and especially alcohol and morphine. Dr. Marion Sims declared that syphilis had "killed more of the human race than the bullet." 125,000 people in the United States alone die in consequence of tuberculosis every year. No human being who is addicted to these drugs. (alcohol or morphine), can escape the consequences of the "addiction" under the laws of heredity. Among others who were slaves to morphine and utterly unable to free themselves from its awful curse, we have lately treated seventeen physicians. The abnormal mental characteristics of these patients were, or seemed to be, pathognomonic, and pointed unmistakably, more or less, to pathological changes in the cells of the brain, as illustrated in the microscopic photographs taken from the sensori-motor area of alcoholic patients who died at Clayburry Hospital, and contrasted with sections of the same area taken from normal, healthy brains of non-alcoholic patients who died at the same institution. The contrast is striking. "The nerve cells in the alcoholic brains have *extraordinarily diminished* in numbers, having *degenerated and wasted away*. The cells *degenerate, shrink and disappear*. The cells damaged in this way *never* recover, and as far as we know are *never* replaced."—Sir Victor Horsley's work, page 121.

Fifty per cent. of the children of all such habitues are degenerates, as is well known; and, thus, science confirms the remarkable statement of the Mosaic law. Sir Victor Horsley demonstrated that alcohol is found in the *foetus in utero*, and Dr. Wiglesworth declares that a "direct poisoning of the germ cell itself takes place by the alcohol and morphine circulating in the blood, and a consequent direct injury to

the cells of which this structure is composed and which by reason of the injury are prevented from developing a stable organism. If the alcoholic poisoning of the germ cells and ovum has reached a certain degree of intensity, imbecility and even profound idiocy may be expected to result, while, if of a less degree, the injury may manifest itself in the various forms of adolescent insanity, when adult life is developing, or has been attained."—Dr. Potts, an eminent investigator tells us "that when a toxin finds many victims *in utero* some of those who escape premature death must only just do so, and can hardly have an average mental and physical endowment. Some of these individuals may pass as normal up to a certain age, when in consequence of their original poor stock of vitality, early mental or physical decay will appear."

Within ten miles of my office, in Hanover County, Va., there lives a widow with three sons begotten by a drunken father, and all three perfect idiots, unable to attend even to their personal necessities. One was about 40 years of age, another about 35, while the third one died. I rode out to see, myself, this visitation of the sins of the father upon the first generation, under the laws of heredity. The sad, clinical picture is still upon the page of my memory—the poor dejected mother and her helpless offspring. Other cases of like nature I could mention. Dr. Kerr states a case, typical of hundreds of others, in which was born a son, then a daughter, who were vigorous specimens of humanity, mentally and physically. After the birth of the daughter the father became an habitual drunkard. He had four more children of whom one was defective in mind while the remaining three were complete idiots. In this case not only was the germ cell (spermatozoa) of the father devitalized and diseased by the alcohol circulating in his blood, but his four children yet unborn were seriously affected by the alcohol circulating in the *foetus in utero*, one after another. Was not that father a criminal? Should not the State interfere here?

Fourteen years ago a committee of American physicians were appointed to investigate the influence of heredity as a cause of inebriety. Over 3,000 cases were investigated. Dr. Crothers, the chairman, says: "The heredity of inebriety

is established from such studies beyond all possible question and doubt. The central conclusion, which cannot be stated too strongly, is: that the injury from alcohol to the cells and nervous tissue is transmitted to the next generation with *absolute certainty* in some form or other. It may not appear always in the drink and drug symptoms, but the injury breaks out again in some neurotic trouble, defect or predisposition. Scientists, properly, experiment first upon the lower vertebrata, guinea-pigs, rabbits, and dogs chiefly, before they investigate the effect of drugs upon man. Prof. Hodge mated two alcoholized dogs. "Out of 24 puppies in four consecutive litters only four proved viable." Prof. Lantinen studied the effect of alcohol in small doses given daily for eight months to rabbits and guinea-pigs. "Only 51 per cent. of the alcoholized animals lived, while in the 'control cases' to which only water was given 62 per cent. of the offspring lived." Dr. Feri says, "when guinea-pigs are subjected to the continuous use of alcohol during pregnancy morbid changes are found in the brain of the offspring. There is also a marked stunting and deficiency of growth and weight. There is a much greater tendency to disease and death—'The Hygiene of Mind.'"

Prof. Domme investigated 10 alcoholic and 10 non-alcoholic families, with this result:

	Alcoholic.	Non-Alcoholic.
Number of children	57	61
Deformed	10	2
Idiotic	6	0
Epileptic	6	(2 backward.)
Non-viable	25	3
Normal	10%	88%

"There are hundreds of thousands of prostitutes in this country supported at the terrible expense of the manhood of this nation. What is the price? More leprosy and diseased bodies. Diseased organs manifesting themselves in their progeny, in idiocy, insanity, blindness, and other sequelae. From one-third to one-half of the poverty of the United States and England results from the inefficiency produced from alcoholic indulgencies. Twenty-five to thirty per cent. of all the insane patients of the United States in our asylums owe their condition directly or indirectly to the abuse of alcohol. Dr. H. S. Williams has made a scientific investigation of statistics and concludes that, as a crim-

inal estimate, two-fifths of the paupers, one-fourth of seekers of charity outside of almshouses, and nearly one-half of dependent children in America owe their deplorable condition to alcohol."—Dr. Phelps. Surely hereditary alcoholism is an undeniable fact; and, "whatsoever a man soweth, that shall he also reap."—Gal. VI.

"Noah was a just man, *perfect* in his generations." The King's translators, here, have followed the Vulgate word for word, ("*Noe vir iustus atque perfectus fuit in generationibus suis*"). and not the original—(Gen. VI. 9). While there are some thirteen words rendered "perfect" in the Old Testament, yet, the word "*tamin*" was the word selected by Moses in describing the physical perfection of the sacrificial victims in Leviticus. He used it seventeen times in this book alone. It means "*without blemish*." This is the word used here (Gen. VI. 9); and Moses says: "Noah was a just man, *without* (physical) *blemish* in his generations" (*bedortayu*, from *dor*, a *circle*; the revolving years of Noah's life were "nine hundred and fifty years;" these were Noah's circles.) The word refers to *physical*, not normal perfection. The beasts that burned and smoked upon the Jewish altars had no normal character. And the high moral characteristics given Noah by Moses and St. Paul (*dikaiousunes kleronomos*—"heir of righteousness," Heb. X, 1-7), were all first summed up by Moses in the word "*tsad-dick*"—just, righteous; leaving "*tamin*" descriptive of his personal, unblemished hereditary descent, and of his uncontaminated, ancestral pedigree. Now, spirit beings, Elohistie, Cherubic, Seraphic, or Angelic have the marvelous power of materializing at will. The context shows that these spirit beings materialized in human bodies; married the "daughters of men," and their issue was a race of "Giants" of whom "Og was the remaining remnant."—Duet. III:11. The ancestral germ cells of Noah's family were of pure Adamic stock unmixed or uncontaminated with those spirit beings, who for their sin were not sentenced to "death" as the Adamic race, but to "lowest Hades," in perpetual bonds under gloom "unto the judgment of the great day," when the Saints, under Christ, will finally judge them 2 Pet. II:4; Cor. VI, 1-3; Jude, 6.) It seems that these evil angels are not included in Mes-

siah's death.—He "tasted death for every man."
—Heb. II:9.

The Episcopal Church in its Council at Lexington, Va., has just passed a resolution by a large majority, demanding a certificate from the prospective bride's family physician that the groom is free from "all communicable diseases," before any clergyman can marry the parties. This is a move in the right direction, and will, if seconded by other denominations of Christians, work out to the betterment of humanity.

But, let us amend the above resolution by striking out the minister's demand of a health certificate from the prospective bride's physician, and insert in place thereof the demand of the bride's father. It is not the function of the minister to demand the health certificate, for he is not specially interested in it; but it is plainly the duty of the bride's father. Why should the father turn over to the clergy the question of who is or who is not a suitable groom for his daughter? It is not a church but a State ordinance, and is regulated by the various States or nations of the world, according to their sense of propriety, and it maybe, after all, better to limit the ceremony to the civil magistrate. The State should take the certificate out of the hands of the clergy and place it into the hands of the clerk of the court with suitable penalties for its violations. And the time to demand it is before the engagement. If divorces are necessary, let them come before the suitor is accepted.

Thanks to the renaissance of a new day when public awakening is casting aside old disguises of modesty and demanding scientific knowledge as to the very fountain of life. Does knowledge of heredity, of eugenics, render a woman less womanly, less refined? Does the nurse's knowledge of eugenics, or heredity, sully her character? Do they not, as a class, make the best of wives? The prospective bridegroom's health certificate is one of the greatest instruments ever placed in a father's hands.

411 East Grace Street.

"You'll be late for supper, sonny," said a merchant, in passing a small boy who was carving a package.

"No, I won't," was the reply. "I've got do meat."—Ex.

Book Announcements and Reviews

The Semi-Monthly will be glad to receive new publications for acknowledgment in these columns, though it recognizes no obligation to review them all. As space permits, we will aim to review those publications which would seem to require more than passing notice.

Treatise on Pellagra: For the General Practitioner. By EDWARD JENNER WOOD, S. B., M. D., Chairman Pellagra Commission, North Carolina Board of Health; Member American Society Tropical Medicine; formerly President Medical Society North Carolina, etc. 8vo. Cloth. 377 pages, with thirty-eight illustrations. New York and London: D. Appleton & Co.

This is a very interesting book on pellagra, and gives in an impartial way the substance of of what is known about the disease at the present time. It begins with the history of the malady, and states its geographical distribution. Much space is given to the theories of etiology, but after all, it is admitted that very little or nothing is known in this direction. The sections on general characteristics of the disease, symptoms, diagnosis, and prognosis are all good; the chapter on prophylaxis is purely speculative, and chiefly quotes others as to their absence of knowledge on the subject. Treatment offers no specific, although empiric methods have apparently helped some cases, while in many others nothing has seemed to avail. The author writes well, and frankly states the *pros* and *cons* of the pellagra situation;—until more is learned, he has done about all he should reasonably be expected to do.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles of Interest to Students and Practitioners. By leading members of the Medical Profession. Edited by HENRY W. CATTELL, A. M., M. D., Philadelphia. Volume III, 23d Series. 1913. Philadelphia and London. J. B. Lippincott Company. 8vo.; 303 pages. Cloth, price, \$2.00 each.

Bureau of American Ethnology, Bulletin 53, Smithsonian Institution. Chippewa Music—II. By FRANCES DENSMORE. Washington Government Printing Office. 1913. 8vo.; 341 pages. Cloth. Profusely Illustrated.

Obstetrics. A Manual for Students and Practitioners. By W. P. MANTON, M. D., Professor of Obstetrics and Clinical Gynecology, Detroit College of Medicine, Detroit, Mich. Second edition, revised and enlarged, including selected list of State Board of Examination Questions. The Medical Epitome Series. 12mo. 292 pages, with 97 engravings. Cloth, \$1.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1913.

The Practitioner's Visiting List for 1914, with Special Memoranda. Philadelphia and New York: Lea & Febiger. Flexible leather with pocket and pencil, in Weekly, Monthly, 30-Patient Perpetual, and 60-Patient Perpetual forms. Price, postpaid to any address, \$1.25. Thumb-letter index, 25 cents extra.

The Physician's Visiting List for 1914, with Tabulated and Other Notes. Sixty-third year of publication. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut Street. Sold by all booksellers and druggists. Flexible leather, wallet-shaped with pencil. Price, \$1.00 to \$2.50, according to style.

Transactions of the Clinical Society of the University of Michigan. October, 1912-October, 1913. Volume IV. Edited by the Secretary-Treasurer. Founded November 28, 1902. University Hospital, Ann Arbor, Mich. 1913. 215 pages. 8vo. Cloth.

Bulletin of the State Board of Health of Kentucky. Biennial Report 1910 and 1911. Volume II, No. II. Cloth; 8vo.; 609-iii pages. Edited and Published by the State Board of Health of Kentucky, Frankfort.

Essentials of Prescription Writing. By CARY EGLESTON, M. D., Instructor in Pharmacology, Cornell University Medical College, New York City. 32mo. 115 pages. W. B. Saunders Company, 1913. Cloth, \$1.00 net.

Editorial.

Prenatal Considerations.

A study of the high death rate and the morbidity of children, especially those under one year of age, compels one to pause and consider the causes of these high rates.

Eugenics strives to eliminate many of the conditions that are responsible; hygiene and sanitation accomplish much; laws are enacted in several States to regulate marriage of the unfit; but in many instances, however, these efforts and results fall short of their end.

It cannot be questioned that the syphilitic, the scrofulous, the tuberculous, the leprous, and the drunkard should not be permitted to marry until pronounced cured by competent experts, and are no longer a source of danger to their offspring; the same applies to epilepsy and insanity.

Still, how is it possible to prevent such marriages? Parties debarred in one State easily cross to another having no law regulating marriage, and, in time, the woman becomes pregnant to bear a child with evidence of syphilis, tuber-

culosis, scrofula, or other disease. In the majority of such instances, death fortunately rid them of their diseased child, to make room for another.

Illegitimate children, especially among the poorer classes, will be born, in spite of every moral, ecclesiastic and legal tenet; the parents of these illegitimate children know full well the city or the State of their residence will provide for their care, either in hospitals or homes; this form of State paternalism but increases the evil.

The principles and laws of sanitary science enable every one to live in clean, healthy, well-ventilated quarters; they provide public baths and playgrounds; establish the age of the child permitted to work, as well as the number of hours such work shall be continued; they segregate the diseased, as far as possible, and surround them with restrictions, in that the tuberculous and the syphilitic shall not be in intimate contact with the well while at work.

The best governed communities are those having the fewest laws. Reason, persuasion and example will frequently accomplish more than the most rigid and drastic laws.

The Census Reports furnish for the registration area of 1911 the following appalling facts, which have been taken from a monograph—"Prenatal Care"—by Mrs. Max West; this monograph has been issued by the Children's Bureau of the Department of Labor, under date of July, 1913:

Of an estimated number, 300,000 babies less than one year old, dying during the last year in this country, at least one-half of these deaths were needless, more than 42 per cent. did not complete the first month, and of this 42 per cent. almost seven-tenths died as a result of conditions existing before they were born or of injury and accident at birth. In less than one week after birth about 83 per cent. died of such causes, while of those that lived less than one day 94 per cent. died of these causes. By reason of various nationalities, the income of families, the amount and kind of work performed, and the surroundings of pregnant women, it is utterly impossible to set a standard of living for these women, but the honest, healthy, poorer classes produce almost as great a percentage of healthy

children as we find among the better classes and the idle rich.

The duty of the physician towards the pregnant woman begins with the first evidences of that condition; this duty is paramount when disease exists in either parent. Full and explicit instructions must be given regarding diet, exercise, hours of rest, and the state of the bowels and kidneys. Urinary examinations must be made at regular intervals, and pelvic measurements taken. Any constitutional disease discovered will need appropriate treatment with the hope of carrying the pregnancy to term and rendering the child free from it. In such efforts success often attends.

When we consider the number of deaths among children at or soon following delivery, as the results of accident or injury, the prevention of such accident or injury naturally presents itself. In a majority of such cases the utmost care has been exercised. A coiling of the cord has been corrected, version properly performed, the forceps intelligently applied, or Caesarean section done without avail. In the minority of cases there has been too long a delay, or operative measures have been ignorantly applied.

The infant of healthy parents will need very little medicine; the infant of unhealthy parents needs a systemic treatment for the disease of the parents in order to bring it through the critical period of its life. In the latter instance, it is "to learn to labor and to wait," if we desire to aid in lessening the gruesome statistics of infantile mortality and morbidity.

L. E.

Interesting Exhibit in Medicine and Surgery at the Panama-Pacific International Exposition, San Francisco.

One fact alone would make the exhibit in medicine and surgery at this Exposition the most important of any similar display at any preceeding exposition, for when the world comes to San Francisco in 1915 to celebrate the completion of the Panama Canal, it will be divided in admiration of the two men who perhaps above all others are responsible, under the United States Government, for the successful termination of the gigantic work. These men are Dr. William C. Gorgas, Colonel in the Medical

Corps, and Colonel George W. Goethals, of the Corps of Engineers, U. S. A., representatives of highest honor from the sciences of medicine and engineering.

A complete demonstration of the methods used in fighting the mosquito as well as the equipment that, under man's uses, achieved success against the tropical fevers, malaria, etc., will be installed by the United States Government. The Emergency Hospital, another interesting feature of the exhibit in the department of medicine and surgery, will be a model emergency hospital, provided with its equipment, including instruments and drugs, entirely by exhibitors. Dr. R. N. Woodward, at present in charge of the United State Marine Hospital, situated near the Golden Gate, has been appointed by the Treasury Department to assume control of the Hospital.

Equipment for the Hospital, already donated, includes auto-ambulances, an X-ray apparatus, sterilizing apparatus, wound dressing appliances, the spreads, with the seal of the exposition woven in the center, for the twenty beds that will be placed in the men's, women's, and isolated wards, tables for minor and capital operations, innumerable electric surgical appliances, a library of medical books, a high power microscope with photographic apparatus and dark room for the development of negatives, and, finally, a cradle for the possible future president or countess who may insist, perhaps prematurely on visiting the exposition.

It is not contemplated by the exposition's directorate that patients will be kept at the hospital over night, except in cases where the patient's health may be jeopardized by removal to his home or to another hospital.

The entire hospital equipment will be subjected to competitive examination and considered wherever the display normally would fall, whether in the department of Liberal Arts or Manufacturers and Varied Industries.

The United States Civil Service Commission.

Washington, D. C., announces an open competitive examination, January 12, 1914, for medical assistant, for men only. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position in the Bureau of Chemistry, Department of Agriculture, Washington, at

\$1,800 a year, and vacancies as they may occur in positions requiring similar qualifications.

Graduation from a medical school of recognized standing and at least three years' subsequent experience in the practice of medicine, or two years' subsequent experience in either pharmacological investigations or the actual examination of drug products with reference to claims made therefor by manufacturers, are prerequisites for consideration for this position.

Applicants must have reached their twenty-fifth but not their forty-fifth birthday on the date of the examination, and must have been actually domiciled in the State or Territory in which they reside for at least one year previous to the date of the examination.

Apply at once for further information to above address.

The Richmond Academy of Medicine and Surgery,

At its meeting, December 9, elected officers for the coming year as follows: President, Dr. Charles V. Carrington; vice-presidents, Drs. Greer Baughman, Thos. W. Murrell, J. Fulmer Bright; secretary, Dr. Mark W. Peyser (elected for the twenty-first year); assistant secretary, Dr. E. H. Terrell; treasurer, Dr. W. A. Shepherd; librarian, Dr. G. Paul LaRoque; judiciary committee, Drs. Clifton Miller, M. D. Hoge, Jr., H. H. Levy, McGuire Newton, Robt. C. Bryan, and A. L. Gray. The annual banquet will be held January 13, 1914.

The secretary, Dr. Peyser, in his report, recommended that the Academy take a more active part for the betterment of conditions in civic affairs, especially as they affect the public health. At his request, the report was referred to the ways and means committee, to be reported on later.

Seaboard Medical Association of Virginia and North Carolina.

A most excellent program, scientific and social, was enjoyed by members of the Association who attended the meeting in Norfolk, Va., December 9-11, Dr. J. E. Rawls, Suffolk, Va., presiding. Dr. J. R. Parker, Goldsboro, N. C., was elected president, for the coming year, the other officers being vice-presidents:—Drs. G. K. Vanderslice, Phoebus, Va., C. F. Griffin,

Winton, N. C., R. E. Whitehead, Kempsville, Va., and W. J. Harrell, Aulander, N. C.; secretary, Dr. Clarence Porter Jones, Newport News, Va. (re-elected), treasurer, Dr. Geo. A. Caton, Newberne, N. C., and orator, Dr. J. H. Culpepper, Norfolk, Va. Goldsboro, N. C., was selected for the 1914 place of meeting.

The Southside Virginia Medical Association

Held its quarterly meeting at Kenbridge, December 9. While the attendance was not up to standard owing to the conflict of date with the Seaboard Medical Society, several interesting papers were read, and a number of enjoyable entertainments were tendered the visitors, including auto rides, a smoker by the Board of Trade of Kenbridge, a banquet by the retiring president, Dr. Barrow, and in the evening a dance, followed by a banquet by Drs. Kendig and T. C. Harris.

The Society voted to hold the next meeting at Courtland, and elected the following officers: President, Dr. W. D. Kendig, Kenbridge; vice-presidents, Drs. Geo. W. Hayes, Franklin, H. A. Burke, Petersburg, E. W. Young, McKenney, and H. M. Snead, South Hill; and secretary-treasurer, Dr. E. F. Reese (re-elected), Courtland, Va.

The Malarial Section of the National Drainage Congress

Was organized during the third National Drainage Congress, held at St. Louis, April 10-12, 1913. In a letter from the secretary, Dr. Wm. H. Deaderick, Hot Springs, Ark., requesting us to bring this matter to the attention of our readers, with the hope of securing additional members, he states that the objects of this section shall be "to stimulate the study of the distribution, prevalence and economic importance of malaria, to conduct a campaign of publicity as far as our means will permit, and to devise ways and means to effect a permanent and efficient campaign against this grave disease." Membership fee is two dollars. Dr. Oscar Dowling, New Orleans, is general chairman, with a State chairman representing each of the Southern States and one from the U. S. Public Health Service.

The next meeting of the Congress will be held at Savannah, Ga., in 1914, the exact date to be

announced later. At this meeting an extensive malaria program is contemplated.

Travel Study Club of American Physicians.

The physicians, who made a Study Tour of Europe last year under the presidency of Dr. De Garmo of New York, have organized into a permanent body to be known as the "*Travel Study Club of American Physicians*." A constitution and by-laws have been adopted and the following officers elected: President, Dr. Louis Livingston Seaman, New York; Vice-Presidents, Dr. William B. De Garmo, New York; Dr. Edward B. Heckel, Pittsburgh and Dr. Howard Van Rensselaer, Albany; Secretary-Treasurer, Dr. Richard Kovacs, 236 East 69 Street, New York; Executive Committee, Drs. F. H. Albee, S. Breitenfeld, New York, A. J. Crowell, Charlotte, H. F. Foss, Philadelphia, J. P. Lord, Omaha, J. F. Percy, Galesburg and John Punton, Kansas City.

The Travel Study Club plans for a 1915 Tour to the A. M. A. meeting, the San Francisco Exposition, Honolulu, the Philippines, China and Japan.

Eugenic Law in Wisconsin.

A law, requiring men who wish to marry in Wisconsin to present a certificate of health signed by a reputable physician, goes into effect January the first. It has provoked much discussion, favorable and otherwise, one of the points being made that both parties should be equally subjected to the law. This law provides that any person going to another State to marry may not return to Wisconsin under a year without presenting a certificate of health from a reputable physician, that any physician issuing a false certificate shall be deprived of his license, and that any one disclosing the result of a physician's examination shall be charged with felony and be punished by law. The fee for examination shall be \$3, to be paid by the applicant. We are interested as to what may be the outcome of the law.

Typhoid Fever and Gastroenteritis on a Steamship.

An interesting report was made by P. A. Surg. de Valin, of the Public Health Service, of an outbreak of typhoid fever and gastroenteritis on a steamship on the Great Lakes during

September and October. Reports received from 235 of the 300 on this trip show that there occurred 122 cases of gastroenteritis and 42 cases of typhoid-like attacks, including 5 deaths. Investigation seemed to establish the cause of the outbreak as being attributable to sewage-polluted water taken on board at some point and furnished passengers and crew for drinking purposes, and the presence of the meat cook, who had profuse diarrhea and was in the febrile stage of typhoid fever, in the galley during the major portion of the trip, where the food was handled and prepared for all on board.

Radium Effective in Treatment of Cancer.

So much interest has arisen from the recent wonderful results obtained by the use of radium in the treatment of cancer, that it is now being suggested that the United States pass a law similar to that made by Australia, which seems to have the only other important radium deposits, prohibiting the exportation of any American ores containing radium. In spite of the good accomplished from its use, radium appears to be also a dangerous thing, as either too much or too little may cause results which are harmful. It is estimated that there are about 200,000 cases of cancer in the United States, and there will be only 200 grams of radium to be had for the next twenty years.

Through the New York State Laboratory, experiments in the use of radium will be made in Buffalo, early in January.

Merger of Virginia's Two Medical Schools Being Discussed.

Now that the matter of appropriations to the medical schools by the State will receive the attention of the State Legislature, the subject of the merging of the Medical College of Virginia and the Medical Department of the University of Virginia is again coming in for its share of discussion. The plan suggested is that the Medical Department of the University should be moved to Richmond, and combined with the medical school here. With what favor this proposition will meet on the part of the University is a matter of conjecture.

The Virginia Osteopathic Society

Held a most enjoyable and enthusiastic meeting in Richmond, December 13, at which the

following officers were elected: President, Dr. Charles Carter, Danville; Vice-President, Dr. S. H. Beckler, Staunton; Secretary-treasurer, Dr. W. D. Bowen, Richmond, and chairman executive committee, Dr. J. Meek Wolfe, Bristol. The next meeting will be held in Roanoke, the second Saturday in June, 1914.

Prospective Tour of Surgical Clinics of Europe.

Under the auspices of the Georgia Surgeons' Club, composed of a number of prominent surgeons of that State, a sixty days' tour of the surgical clinics of Europe is being arranged for representative Southern surgeons, to wind up at the meeting of the Congress of Surgeons of North America, in London, the latter part of July, 1914. Those interested may secure details of the trip from Dr. R. M. Harbin, Secretary-Treasurer, Rome, Ga.

Southern Surgical and Gynecological Association.

At the meeting of the Association in Atlanta, Ga., December 16-18, Dr. John W. Long, Greensboro, N. C., was elected president, and Dr. W. D. Haggard, Nashville, Tenn., was re-elected secretary. Asheville, N. C., was selected as the next place of meeting. Among the subjects to receive a large share of discussion was cancer and its treatment.

Virginia State Board of Medical Examiners.

Forty-six applicants to practice medicine in this State appeared before the Board meeting in Richmond, this month. These included forty-three white men, one white woman, colored man, and colored woman, respectively. The next meeting will be held in this city in June.

Report of Richmond Health Department.

The November report of the Richmond Health Department showed 256 births, 161 white and 95 colored, and 203 deaths, 101 white and 102 colored. Heart disease was the cause of the greatest number of deaths, there having been twenty deaths from this one trouble.

Smallpox at Niagara Falls.

For the week ending December 13, 1913, 11 cases of smallpox were notified at Niagara Falls, N. Y.

Dr. Stuart McGuire,

Of this city who has recently recovered from an attack of pneumonia, has gone South for a short stay while recuperating.

Obituary Record.

Dr. Thomas J. Wright,

Of Churchland, Va., died December 15, in a Norfolk hospital; about two weeks previously he suffered a fracture of the hip as a result of a fall from his horse, this injury apparently causing his death. Dr. Wright was a native of Nansemond County, Virginia, and studied medicine at George Washington University, Washington, and Bellevue Hospital Medical College, New York, graduating from the last named institution in 1871. His widow and two children survive him.

Surgeon William M. Wheeler, U. S. N.,

Died at the Naval Hospital, in Washington, D. C., December 14, after a protracted illness, aged 39 years. He was a graduate in medicine from the University of Virginia in 1895, and had served in the United States Navy about fifteen years, his last station being at the Navy Yard, Norfolk, Va. His widow and three children survive him. The interment was made in Arlington National Cemetery.

Dr. Francis L. Parker,

Distinguished as a surgeon in the Confederate army, and prominent in medical circles, died at his home in Charleston, S. C., December 15, age 77 years. He graduated in 1858 from the Medical College of the State of South Carolina, and had been honored by his *alma mater* in having formerly been professor of anatomy and also dean of the school.

Married.

Dr. Allard Memminger, of Charleston, S. C., and Miss Margaret Aloysius Coleman, also of Charleston, at Newport, R. I., December 10. they went by automobile to Dr. Memminger's country home at Flat Rock, N. C., and will later go to Charleston. Dr. Memminger is widely known as an author, and was at one time professor of chemistry and hygiene in the Medical College of South Carolina, and was later dean of the same school.

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Original Communications.

RECENT IMPROVEMENTS IN THE SURGICAL TREATMENT OF HYPERTROPHIED PROSTATE.*

By J. SHELTON HORSLEY, M. D., Richmond, Va.

The treatment of hypertrophied prostate is now usually operative, but until comparatively recent years the mortality was high. This affection occurs in elderly men who are naturally poor surgical risks, and when an operation that often involves considerable loss of blood and decided change in the back pressure on the kidneys is undertaken, the death rate will be high unless some measures are taken to counteract these two chief dangers, hemorrhage and uremia. Whatever is the cause of shock, it is profoundly affected by hemorrhage and by impaired renal functions. While it is possible to select cases with a view to mortality rate and get a considerable number without a death, any one who operates upon hypertrophied prostates just as they come, and who draws his patients from a more or less local field, will find a mortality that is prohibitive unless hemorrhage and uremia can be prevented.

The function of the kidneys should be carefully tested before operation, and there is nothing that will give such accurate knowledge of renal efficiency as phenolsulphonephthalein. Formerly I operated upon prostates as upon other surgical cases, one or two days after admission to the hospital, but I make it a rule now never to operate until a patient has been under observation five or six days at least and until the phenolsulphonephthalein test shows an elimination in the first hour of 35 per cent. or more. Usually the total amount of the urine

and the specific gravity are good guides. As a rule, the specific gravity first falls and then rises and when it has reached 1016 after the preliminary drop, the kidneys are often in sufficiently good condition to operate. This, however, is not always true, and prostatectomy should not be done under these conditions except when the phenolsulphonephthalein test also shows that the function is satisfactory. This point was deeply impressed upon me by the following case: Mr. J. had been suffering from prostatic trouble for some months, and for a week before coming into the hospital had to be catheterized. He was sixty-seven years old, had lived a clean life in the outdoors, and was apparently in good condition. After draining the bladder through a catheter in the penis for a few days, the urethra became irritable. The specific gravity had gone up to 1010, and I was inclined to operate. The phenolsulphonephthalein test, however, showed an elimination of only 17 per cent. in the first hour. On this account alone I did not operate, but made a suprapubic puncture under cocaine and threaded a catheter through the canula for drainage, in order to relieve the irritable urethra. The patient's condition, which was apparently good, except that he was restless, gradually became worse. He was uremic and delirious for five days, but recovered slowly, and five weeks after admission to the hospital a suprapubic prostatectomy was done after the method of Squier. He made a satisfactory and uneventful recovery, his pulse never going over 100 after four hours after the operation. He left the hospital in excellent condition, with the suprapubic wound closed and with full control of his urine. I am confident that if the prostate had been removed when I first thought of doing so, and when the phenolsulphonephthalein test showed an elimination of 17 per cent. in the first hour, he would certainly have died.

*Read before the forty-fourth annual meeting of the Medical Society of Virginia, at Lynchburg, Va., October 21-24, 1913.

The most satisfactory method of establishing proper renal function in such cases is to keep the patient in bed and regulate the diet, giving soft diet, together with an abundance of milk and large draughts of water. The patient should have rectal salt solution, about a pint three times a day. In the way of medication, urotropin should be administered in large doses for two or three days out of the week. I give fifteen grains every four hours for three days and then discontinue it entirely for the rest of the week. Urotropin is much more effective in this way, and really less irritating, than when smaller doses are given continuously. The administration of large doses of spartein, one or two grains four times a day, is also excellent. In addition to this, a mixture of *nux vomica*, gentian and condurango may be given before meals. The bowels should, of course, be regulated. It is best to keep the patient in bed. It is a fallacy that old people should be gotten out of bed as quickly as possible. Such patients need rest even more than the young do, as rest means less strain upon the kidneys because they have less work to do. The body can be kept better protected from draughts and being chilled in bed. It is, of course, possible to keep any patient in bed too long, but other things being equal, old people recuperate less rapidly than the young, and their kidneys and other organs need even more rest.

When the urine is in reasonably good condition and shows an excretion of at least 35 per cent. of the phenolsulphonephthalein in the first hour, the patient is ready for operation. We do not expect to have the urine entirely free from albumen or occasional casts, but neither should be abundant. The bladder should be drained at first by a permanent catheter in the urethra, which is closed by a clamp and opened every three or four hours. After a few days, the clamp should be taken off and the drainage be made constant. If the urethra is much irritated by the catheter, it is best to puncture the bladder suprapubically after it has become distended. This can be done in a few minutes under cocaine, using a trocar and canula and threading a soft rubber catheter through the canula after the trocar has been removed. Drainage by this method relieves the irritation in the urethra and is most effective. The kidneys become accustomed to working without any back pressure, which must be the post-operative

condition for at least several days, and consequently they are less liable to shut down than they would be if the patient was only catheterized occasionally up to the time of operation.

As for the method of operating, I formerly did the perineal method, but for many reasons I have since adopted the suprapubic operation according to the method of Squier. This operation can be quickly done with but little loss of blood and affords exceedingly satisfactory drainage. The method consists in making a rather long incision into the bladder, going as far up to the apex as possible and enucleating the prostate by inserting the finger into the internal meatus, breaking through the roof of the urethra and enucleating to the middle line on each side. In this manner the so-called capsule of the prostate is closely adhered to, and bleeding is minimized. The bladder is closed up to the upper angle at the fundus where drainage is made. This lessens the chances of fistula.

The great objection to the suprapubic operation has been the impossibility of keeping the patient dry. I have devised an apparatus which I believe will work satisfactorily. A two-way tube is placed in the bladder at the upper end of the incision and a temporary mattress stitch of tanned catgut is put around it, but is not tied. The rest of the incision is sutured. One of the tubes, a very small one, is connected with a tank containing hot boric acid solution at about 115°. The other tube, the exit tube, leads to an apparatus which is placed on a stool or chair by the patient's bed and produces intermittent suction. This apparatus consists of a jar with two entrance tubes and one exit tube. Each entrance tube is about one-eighth of an inch in diameter and goes in at the top of a small tin cylinder, which is screwed down on a half-gallon Mason jar. About half-way down on this cylinder, there is a siphon tube as an exit, one-quarter of an inch in diameter, with an inner arm about two inches long. One of the entrance tubes is connected with the drainage tube that goes from the bladder, and another is connected either with a faucet or a large tank of water. When the jar fills up, the siphon sucks off the water and creates a partial vacuum, which draws off the urine and water from the bladder. As it fills there is an interval in which there is no suction, but a slight positive pressure which prevents the walls of the bladder from being drawn into the drainage tube.

It is highly important to insert the tubes in the bladder properly at the time of operation and start the water flowing at once. If this is not done, clots may form. It takes several minutes for blood to clot, and if the blood can be sufficiently diluted with hot water and drained off, no clots should form. If they occur, they are often troublesome to remove and conceal bleeding. Packing in any form is objectionable, not only because it is often inefficient, but because it is painful, difficult to remove, and liable to increase sepsis and uremia. After the water has run about twenty-four hours, if it comes back entirely clear, the irrigation is discontinued and the tube left in the bladder for a day longer. At the end of this time, the tube is removed, and the temporary suture of catgut is tied. A catheter is then inserted into the urethra and kept there for several days, so giving the suprapubic wound a chance to close.

I have used this method as described either in part or in whole in five cases, which include all the prostatectomies that I have done in the past year, and each case has recovered with satisfactory functional results. In one of the earlier patients, where packing was used, a severe secondary hemorrhage took place a few days after the packing was removed. He recovered, and is entirely well. I never use packing now, relying upon control of hemorrhage by the manner of operating and by continuous irrigation with hot water. I believe if this method is carefully carried out, the mortality rate in prostatectomy will be reduced to the lowest point, but it must be remembered that there are many details which are essential, and without attending to them we cannot expect success.

THE SANITARY CONDITION OF OUR COUNTY COURT-HOUSES.

By CH. WARDELL STILES, Ph. D., M. D.,
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Service.

The "majesty of the law," the "dignity of the courts," and several similar expressions in almost every day use are calculated to give rise to the belief that there is something inherently deserving of respect in the average courthouse and that "His Honor" the "Judge" is a person to whom respect is due.

If cleanliness or lack of cleanliness is an element that enters into the determination of the

respect due to a person or to an institution, a visit to a number of courthouses would doubtless result in decreasing the respect the average citizen is supposed to have both for the courtroom and "His Honor" who presides over the court.

Admitting that there are exceptions, it is scarcely an exaggeration to state that the average courtroom I see in my travels is little less than a very large cuspidor, provided with a filthy carpet, some dirty chairs or benches, some dirty windows, and a few dusty books. The idea that the man, "His Honor," who presides over such a filthy room, and permits the filth to continue, has a right to claim any special amount of "respect" is amusing, indeed, if, as stated, cleanliness or lack of cleanliness is an element that enters into the determination of the respect due to a person.

Let us turn to a few examples, taken at random, from two different States, separated by approximately 500 miles.

County Courthouse at A.—Dirty rooms, dirty desks, filthy floor, filthy carpet, tobacco spitting everywhere.

County Courthouse at B.—Dirty building; walls and floor filthy with tobacco juice; halls dirty.

County Courthouse at C.—Dirty; tobacco-spitting, despite broken sign forbidding it.

County Courthouse at D.—The floor looks as if it had not been swept for months. Dirt has been *pushed* up into a corner and left there. Floor and wall filthy with tobacco spitting. Yard strewn with trash.

County Courthouse at E.—Courtroom filthy with tobacco spitting and tobacco cuds. Several cuspidors in sight.

County Courthouse at F.—Rather clean; in fact, for a courthouse it is very clean.

County Courthouse at G.—A splendid building, in unusually clean condition. Signs posted against spitting. Cuspidors in convenient places. Despite signs and care, some spitting on the floor does occur.

County Courthouse at H.—This town, like G, can well be proud of its county courthouse and general cleanliness of the building.

County Courthouse at I.—Old and dirty; abundant spitting on the floor; well ventilated.

County Courthouse at J.—Very dirty; walls, steps and corners black with tobacco spitting.

County Courthouse at K.—Has signs against spitting. First floor fairly clean. Courtroom very dirty, carpet filthy with dust and tobacco juice.

County Courthouse at L.—In fairly clean condition. Anti-spitting signs in evidence, but spitting has occurred on walls and floors.

The foregoing observations were made in the summer of 1913.

What is the cause of the filthy conditions here described? The reader will probably reply that the people who make a habit of loafing around a courtroom belong to a class of persons who would naturally be careless in regard to promiscuous spitting. This answer has in it a great deal of truth, and might be carried even further, namely, the more rural a county, the filthier (in general) the courthouse is likely to be, but the answer explains only the *tendency* toward filth, not the reason why this filth is permitted in a public building.

My explanation of the condition would be this:

Granted that the people who visit courtrooms in the capacity of criminals, or as witnesses to criminal acts, or as onlookers, and loafers, belong in *general* (there are exceptions!) to a class in society in which ideas on cleanliness are embryonic, the courthouses are under the direct supervision of another class of men (sheriffs) whose ideas on the subject of cleanliness are in general (here again there are exceptions) exceedingly rudimentary; further, the lawyers in general have ideas on cleanliness that are distinctly vestigial; again, "His Honor," the Judge, is selected from the lawyers, that is to say, from a profession which—judging from their offices—contains, as its majority, men whose personal habits as to cleanliness do not guarantee that the judge, selected from their numbers, will have a keen sense of discrimination between filth and cleanliness. Accordingly, the average judge does not really know whether the room in which he holds court is clean or dirty, and he does not seem to care.

For a most excellent example of dirty house-keeping, and filthy tobacco spitting, visit the average county courthouse.

The spinning room of the average cotton mill is far cleaner than the courtroom of the average county courthouse that comes under my observation.

It seems a pity that the courts thus set an example to the public of poor public health measures.

FOCAL MYELITIS.*

By J. ALLISON HODGES, M. D., Richmond, Va.
Professor Clinical Neurology and Psychiatry, Medical College of Virginia.

The subject to which your attention is invited to-day is illustrated by the case before you, and is one of focal myelitis due to syphilis.

In preceding lectures a number of cases of syphilis of the nervous system have been exhibited, but I have not so far shown one of this class, and now, except for its treatment, will discuss this as a case of ordinary acute transverse myelitis.

Because of the fact, also, that it is such a typical case, the subject will be treated in a broader manner than simply to confine my remarks solely to the causative relation of syphilis, for myelitis is practically the same disease, no matter what its cause.

Although it was known to the ancients, still they did not seem to have had any method of differentiating it, and diseases of the spinal cord were not distinguished from diseases of its membranes until up to the last century.

This disease should also be of peculiar interest to us, because it was not until about 1860 that its modern physiological, pathological and histological study was undertaken, and it is of special significance that Brown-Sequard, a former professor in this college, was among the earliest observers to make authoritative contributions to its study.

Myelitis is essentially an inflammatory disease of the cord, which may be either diffuse or transverse, and may give rise to softening or sclerosis with a four-fold set of commingled motor, sensory, rectal and vesical symptoms that are different in their grouping from those of the so-called systemic spinal diseases. Its progress may be acute, subacute or chronic, and it is important that you should recognize the onset, as well as the stage of the disease in which you may find your patient when called upon to treat him.

As future general practitioners of medicine, I call your attention particularly to the invasion symptoms of this disease, for often they are so slow, so indefinite and so varied that they may

*Clinical lecture delivered in the Memorial Hospital Amphitheatre, November 22, 1913.

be easily mistaken for the ill-defined symptoms of a general malaise, or of some slowly developing type of fever or infection.

This young colored boy, 20 years of age, was first incapacitated by almost suddenly losing the use of both legs August 26th of this year. For some time previously, however, he had suffered from a heavy, lead-like feeling in one or both of his limbs, and had had some nocturnal pains in his legs as well as some sensory symptoms, notably paræsthesias and formication.

For the first few days his temperature ranged from 99 to 103, and on one or two occasions later was slightly higher than this, his pulse being proportionate to the temperature. He had no convulsions, and there seldom are ever any convulsions in this disease unless it be occasionally in the case of children. The symptoms in every case, of course, depend upon the part of the cord which is affected, and in this case the lower part of the dorsal and upper lumbar being involved, the symptoms have mainly been confined to this locality. As you see, the patient can move all of the muscles of the trunk and upper extremity with perfect ease and in a normal manner, but has no control of either of his legs. This case is likewise typical of myelitis in general in the fact that the motor impairment preceded the sensory involvement, though this is not always the rule and frequently varies, especially in syphilitic spinal disease.

The paralysis, however, is typical in that there is complete paraplegia, but very occasionally a monoplegic involvement may be likewise noted. There is, in addition, a symptom which is peculiar to this class of cases, and it is known as the girdle or cincture symptom, for the patient complains as of a band encircling the waist, or one of the extremities which is paralyzed. This patient does not now complain of this symptom, but at one time spoke of it, as if a "twine-string" were tied about his waist.

In testing his reflexes you will note that both the cutaneous and tendon reflexes are increased, and this is generally the case in the later stages of a transverse myelitis. You will also observe a spasticity, especially in the left leg, and while this may be present in all cases of myelitis, it is usually more marked in syphilitic cases such as this.

Although this patient is entirely helpless, you will note that his quadriceps tendon reflexes are exaggerated and in marked contrast to the abol-

ished reflexes which were evident in a case of locomotor ataxia, which was shown you at our last meeting, although that patient was able to walk.

It is a fact, of course, that the symptoms in all of these cases will vary according as to whether the progress of the disease is acute or not, but in general terms they can be classified under two general headings, namely, those of an irritative character, and those of a destructive or paralytic character.

While this patient shows almost complete motor paralysis, yet the rectal and vesical symptoms have been more irritative than paralytic, and have in a sense been more or less intermittent in their tendency.

This may be accounted for, in a measure, by the fact that he has been under continuous treatment since his first attack, and these later symptoms are now probably somewhat held in abeyance for this reason, and, furthermore, because the entire cross-section of the cord is not involved.

The electrical reactions in this case are normal, though this does not necessarily, as in some nerve diseases, indicate a favorable prognosis.

The duration of these cases varies from a few days to years, and it seems to be a recognized fact that some are really self-limited in duration and will recover with but little treatment, except rest.

The main causes are cold, which is the most frequent of all, trauma, muscular strain, acute infectious diseases, syphilis, chronic alcoholism, chronic lead-poisoning, etc.

There is no doubt that specific infection is a large element in the production of myelitis, although, for the purposes of treatment, it is well to distinguish between that which occurs immediately from syphilis and that which follows a specific infection as one of its sequelæ.

The pathology of this disease is, as might be expected, an inflammation, generally accompanied by softening, a softening without inflammation, or a sclerosis.

The termination of any myelitic process may likewise be either in regeneration, sclerosis or the formation of cysts.

The prognosis varies according to the number of factors that may be present in any given case, but, as a rule, the very acute cases are usually fatal, while the subacute and chronic cases depend largely on the patient and his environ-

ments, as well as the treatment he receives. One case of only two weeks duration, which was seen by some of you, and which was to have been exhibited to-day, died just before our meeting.

Some of the factors influencing the prognosis are the age of the patient, the severity and acuteness of the onset, the localization of the disease in the cord, and especially if the progress of the inflammatory process is in an upward direction, the amount of sphincter paralysis and consequent cystitis, the presence or absence of bed-sores, and the state of health of the patient when seized with the malady.

Commonly speaking, a case that begins with a wide-spread paralysis, or a rapidly extending myelitis, or one presenting bed-sores within the first week is usually of bad omen. A case likewise exhibiting complete and enduring sphincter paralysis, especially if complicated with an obstinate cystitis and secondary degenerations, is also of unfavorable prognosis.

The diagnosis is usually made with ease, unless it be in chronic cases where it is important not to overlook the causative influences of a vertebral lesion, tumor or an aneurism.

The four-fold combination of symptoms mentioned before, motor, sensory, rectal and vesical, usually differentiates this disease from other spinal diseases, and as you progress further in your studies the points of differentiation will be more clearly established, though occasionally the diagnosis of spinal syphilis is of the greatest difficulty.

The treatment will vary according as the disease is of the acute or chronic type. In the former, as in all inflammatory diseases, rest is of the greatest importance. Unfortunately, there is no method known of treating the softening, and, consequently, in either the acute or chronic types, the restriction of the expenditure of energy is necessary.

As you see in the case before you, there are evidences of two small bed-sores, and the utmost care must be exercised to prevent further trophic disturbances.

These ulcers are caused by the position of the patient, lying so constantly upon his back, as well as by the almost unavoidable contamination of them, due to leakage from the bladder.

This teaches us, then, that the greatest care must be continuously exercised to prevent further trouble, and, if possible, we should place such a patient upon a water or an air bed and

use the utmost asepsis in our daily method of treatment.

Ice applied to the spine about ten minutes daily, the patient lying on the abdomen, is one of the best local remedies in the early stages of the disease. The time-honored remedies of ergot, belladonna and bromide are also of benefit in myelitic cases, especially if they be of recent origin, and in the more chronic cases iodide of potassium in commanding doses has been of undoubted value, especially in cases where the myelitis appears to have been subsequent to a cerebral syphilis.

As I mentioned to you in the beginning, this case is undoubtedly due to specific infection, and has been so proved by a positive Wassermann reaction; his clinical symptoms and history also bear out the truth of this, and, consequently, in this day of modern methods, we naturally turn to the administration of salvarsan or neo-salvarsan.

As I have intimated to you in past lectures, the action of this remedy in such cases is indefinite and not to be depended upon, but I feel that it is worthy of trial in this case, especially in view of the fact that the patient has been under specific treatment and has improved to a certain extent, and now that he has the opportunity of hospital treatment, I would give him the opportunity of being benefited by this remedy, and I will ask one of my assistants to administer several doses, and then have his blood serum and spinal fluid serum tested, and report to you later the results secured, and I trust that they may be of the most encouraging nature.

THE MIDWIFE IN VIRGINIA.*

By W. A. PLECKER, M. D., Richmond, Va.
Assistant State Registrar of Vital Statistics,
Virginia Board of Health.

The legitimate field and possibilities of preventive medicine seem almost limitless. As one portion is cultivated and beneficial results begin to be apparent, other associated or new branches begin to open up and clamor for attention.

The duties in connection with the administration of the Virginia Bureau of Vital Statistics have impressed upon me the greatness of the task which county, city, State and national departments of health have before them.

*Read before the Seaboard Medical Association of Virginia and North Carolina, at Norfolk, Va., December 9-11, 1913.

We cannot study the baneful effects of alcoholism, venereal disease and gastronomic excesses without realizing that the teaching of moral and self-control is distinctively a function of the health department.

We could do no better in our attempts to impress the individual responsibility of every one to observe strictly the principles of quarantine in infectious and contagious diseases than to teach them the truth, and the very words of the Westminster divines, who sum up so clearly the scriptural teaching that the sixth commandment "requireth all lawful endeavors to preserve our own life and the life of others."

To those who are not familiar with the possibilities of a careful study of vital statistics, it seems a dry and uninteresting subject.

Those who know that it is the bed-rock foundation upon which all preventive medicine is based see in it the opportunity for making first-hand investigation of the greatest value.

While the statistics secured during the first year's operation of the Virginia law are too incomplete to draw fine and accurate conclusions, yet many valuable lessons may be learned from them by patient investigation. These we hope to develop, point by point, in the future, as our time and means permit.

One condition alone I wish to consider briefly at this time, both from its importance and from the fact that it is one of the most apparent of the many problems which face the Department of Health, the medical profession and the State. It is, that nearly, or quite, one-half of the child births in Virginia are attended by midwives.

The serious phase of the question is, that these women, usually negroes, are the most ignorant and dirty to be found.

Up to twenty-five or thirty years ago, when antiseptic, and later aseptic, methods became general amongst the medical profession, this situation might have been tolerated. Not only that, but, under certain conditions, it might have been encouraged.

This is made clearer by reference to the great discovery made by Semmelweiss, in the Vienna Lying-In Hospital, in 1847. There he found that, while the mortality from puerperal septicemia was excessive in the practice of physicians and students who went directly from the dissecting-room and from handling septic patients to the lying-in wards, where vaginal

examinations were freely made with uncleansed hands, the patients in the care of midwives, who made no examinations, fared far better.

You are all familiar with the great improvement he wrought, by simply requiring the hands of examiners to be washed in a solution of chloride of lime.

The midwives did not know, and knew that they did not know.

The physicians did not know, and did not know that they did not know.

To-day the physician knows, and knows that he knows.

The midwife still does not know, but believes that she knows.

The presumption of these ignorant creatures is simply appalling. Without the slightest idea as to the cause or prevention of septic fever, they freely thrust into the vagina of their patient their fingers unwashed and with their nail-tips of the color suggestive of mourning. The sad feature of the case is, that that suggestion of mourning proves too often the actual cause for it in that unsuspecting household.

If the patient escapes septic infection, she is liable to be left a cripple, with undiscovered and unrepaired tears.

Many of them have discovered that ergot is carried by physicians in their obstetrical bags and used under certain conditions.

They, too, procure ergot, and with a show of doing something to help the labor along, give it in large doses during labor. You know the serious results likely to follow to the mother and the fatal results to the child.

They stand aghast in the presence of hemorrhage or puerperal eclampsia, which, with proper management before and during labor, perhaps, would not have occurred.

Faulty positions are not recognized, and a physician summoned, till the patient is moribund.

Without the slightest idea of what is possible or what is impossible, I have known of one of them in her frantic attempts to deliver a transverse child, actually tear its arm off. Of course, a double funeral followed.

A study as county registrar, when the question was asked as to presentation, revealed the fact that midwives lose twice as many infants in breech presentations as physicians, because they do not know that raising the body of the child will hasten the delivery of the after-

coming head and prevent the asphyxiation resulting from delay.

If the child does not seem to breathe, it is wrapped in an old skirt and laid aside, with the exclamation, "Dead," without the slightest attempt at resuscitation.

If the mother and child pass the critical period of actual labor, other dangers await them.

Dirty rags are thrust under and around the mother, inviting later infection.

Abraded nipples receive no attention till breast abscess is the result.

A distended bladder remains unrelieved.

Dirty dressing of the umbilical cord leads up to the child's death from abscess or "fits."

A cursory examination of our certificates of death reveals a shocking maternal and infant mortality from these causes.

The 109 deaths actually reported the first year from puerperal septicemia constitutes, we believe, but a small part of the reality.

Others are concealed under the expression, "No doctor." We have not yet reached the point where all such cases receive investigation as they should.

We believe, also, that many other septic deaths are concealed under the uncertain terms, malaria, typhoid fever, pneumonia, etc.

The actual mortality statistics take no account of the long weeks of sickness, and the later death of the child from lack of a mother's care, while she hovers between life and death.

It is needless to consume time by depicting more fully these scenes, only too familiar to all of you.

I hope to make a more complete study of this whole subject, if the data is sufficiently accurate to justify it, setting forth an actual comparison of the work of physician and midwife.

Practically all physicians make vaginal examinations; some midwives do not. Some physicians are clean; some are not. Who knows, therefore, what the result will be? We simply seek truth. We do not know how large a part of the medical profession is living up to the knowledge that we possess.

If, however, actual investigation proves that we are correct in our surmises, and the midwife is shown beyond question to be a source of danger and death, then the State cannot refrain from stepping in and protecting her citizens.

The responsibility of proving the actual facts rests upon the Bureau of Vital Statistics of the Department of Health.

The secondary responsibility of proclaiming to the public the danger which may be prevented likewise rests upon the Health Department.

I believe, finally, that if the situation is found to be a serious one, a remedy can be worked out.

To this end, I am here to make an appeal to the medical profession to stand shoulder to shoulder with the Health Department in its work, and especially to aid during the year 1911 in securing statistics of births and deaths that will reach our office accurately, promptly and completely.

I particularly appeal to you to report the causes of death accurately.

Do not deceive yourself and us into believing that a death from puerperal infection is due to malaria, typhoid or pneumonia. If the death is the result of alcoholism, or venereal disease, let it show in the certificate, and do not state simply some end result.

Keep by you for ready reference the excellent little "Physicians' Pocket Reference" book sent out to all physicians by the United States Bureau of the Census. It is by complete sympathy and harmony between the profession and the Health Department that the highest results will be achieved and the greatest good accomplished for both—for the State and for the people.

The *remedy* proposed is to educate the public as to the danger from dirty and neglectful methods.

Teach them also that the laborer is worthy of his hire, and that they cannot expect skillful, pains-taking service for the ridiculously low fees that prevail in some localities in Virginia. There are places where the regular obstetrical fee is \$5.

There will remain after all is accomplished that can be still many, particularly of the colored people, who cannot secure a physician. For these, the midwife will remain as a necessity. Therefore, she must be taught several fundamentals. These are:

1. Never make a vaginal examination.
2. Never administer any drug except castor oil.
3. Call in a physician as soon as anything unusual is discovered.

4. Aid in the quick delivery of the after-coming head by raising the body of the child by the feet.

5. Before handling the patient, cleanse the hands with soap and warm water, using preferably an antiseptic soap, and use more cleanly methods with the patient and surroundings.

In addition to the education of the midwives and the public, the physician himself must be inspired with an even greater sense of responsibility in promptly responding to calls for aid to women in distress, regardless of financial reward. In other words, to practice the law of love laid down by the great teacher.

We believe that all of these things can best be brought about by the Department of Health, chiefly through bulletins and other educational means already available.

We believe that this is legitimate health work, and that the Bureau of Vital Statistics is the source from which this labor should receive its initiative.

TREATMENT OF CHRONIC COLITIS BY IRRIGATION THROUGH STUMP OF APPENDIX.

By E. M. MAGRUDER, M. D., Charlottesville, Va.

In the treatment of inflammation of any part, the two chief requisites are *rest* and *accessibility* of the inflamed organ.

By rest is meant suspension of function. Continued function when inflammation is present acts as a bellows upon smouldering fire, blowing it into flame and causing a spread to neighboring parts.

Accessibility of an inflamed part renders it possible to apply treatment directly to the seat of lesion and not in a round-about way.

The difficulty of perfectly applying these principles in colitis renders treatment in many cases unsatisfactory. The constant passage of fecal matter over inflamed surfaces keeps up irritation and prevents local rest, while the inaccessibility of the interior of the colon interferes with direct local treatment.

The vast majority of cases of acute colitis will yield, after a longer or shorter time, to rest in bed, proper diet, emptying of the intestines by purgatives (castor oil, epsom salts, etc.), and rectal injections of cleansing solutions.

But with chronic colitis it is a different matter. Administration by the mouth of remedial agents, such as astringents, intestinal antiseptics,

opium, etc., is very unsatisfactory, while rectal injections are equally so as, on account of the sigmoid flexure, they either fail to reach the colon at all or in too small quantity to be beneficial.

In 1905, I performed appendicostomy upon two cases of obstinate chronic colitis, who had faithfully tried the usual treatment. An incision was made through McBurney's region, as for appendicitis; the appendix was drawn through the wound and the cæcum around its base sutured to the parietal peritoneum. The muscles, fascia, and skin were then snugly stitched around the appendix. In *Case I*, the appendix was cut off at the time of the operation half an inch above the skin level and the dressing applied, while in *Case II* the appendix was not at once removed, but allowed to lie upon the skin surface and the dressing placed over the whole until the irrigations were started when it was cut off at the same level. After three to eight days the dressings were removed, a soft catheter attached to a large fountain syringe was passed through the stump, and the large bowel irrigated once daily with a gallon or more of sterile water with or without borax, sodium chloride, boric acid, glycothymoline, etc., all being used at different times. It was found better to insert a rectal tube to facilitate the exit of the cleansing fluid. In both cases the wound healed promptly around the stump by first intention and there was never any fecal discharge through it. The irrigations caused no pain but there was a feeling of fullness.

Case I was a young woman about 25 years old, who had been passing large quantities of mucus from the bowel for three years with constant loss of weight and strength until she was literally a walking skeleton, though otherwise sound. At the time of operation her weight was 62 pounds. The operation was performed June 22, 1905, and the patient began at once to gain weight and strength, which was continuous until she finally reached 125 pounds. She left the hospital August 8th following, the irrigations being continued at home. After some weeks she disappeared and I did not see her again till November 4, 1909, four years after the operation. She was then plump and rosy and in perfect health, having married in the interval. She was still taking an occasional irrigation, fearing that, if the orifice were allowed to close,

another operation would be needed. The discharge of mucus had nearly ceased and her diet was normal.

Case II was a man about thirty years old, brought to me by Dr. A. Evans, of Christiansburg, Va., who assisted in the operation. This patient had been troubled for about one year with constant discharges of mucus from the bowel, with progressive loss of weight and strength. The same operation, appendicostomy, was performed, though in this case the appendix was simply laid upon the skin surface and covered with dressings, not being removed for three or four days when irrigation was commenced; by this method danger of infection of the wound is lessened. This operation was performed October 23, 1905, and the patient left the hospital the following December 8th and I have not seen him since; but a letter just received from Dr. Evans, eight years after the operation, states that he gained 30 pounds after returning home and had since been strong and well and able to do hard work upon a farm. There is still at times a slight discharge of mucus, on account of which the patient insists upon keeping the orifice open by an occasional irrigation for fear of a second operation.

REFLECT.*

By E. H. SHOLL, M. D., Birmingham, Ala.

In the inner threshold of my home as a guard to the doorway lies a small block of pure white marble. Chiseled out in letters of relief is the word, "Reflect." The hand that carved it, a kindly hand, has long since mouldered in the dust. The thoughtful mind that pondered as it cut thinks no more. The sweet, pious soul that made life a benison to others has found surcease from its many illuminating works of loyalty and love, and has passed to its blissful reward; but the cold, dumb marble speaks as it daily greets my eyes and deepens the conviction that in ours, as well as in all the other walks of life, there is need for that careful thorough investigation which clears away the rubbish and goes to the foundation. So far as the limitations of human discernment and investigation may go with its finite measure, we must go, as we confront the perplexing

problems with which we are forced to deal in our daily contact, with the ills of body and mind. We are inexcusable unless, according to the measure of our individual capacity, we give that care and painstaking thought to the solution of the morbid issues of life which a conscientious regard to duty requires. When in doubt and in the dark, perfunctory contentment can be no solace to the soul. Ingenuous solicitude will seek the light, and will find it. If one candle will not dispel the darkness, two may, or three or more, until all will be made light.

I have been thus discursive in a general way as a prelude to some few clinical records that may illustrate practically in some measure the underlying thought that has been in my mind, the absolute necessity of looking with cautious and reflecting care into those apparently superficial ills whose sources lie really deep and always hidden to the careless and thoughtless investigator, but are ready to yield up their treasures to him who thinks, who meditates, who reflects.

The almost forty years of active professional life warn me that in the ordinary course of nature I must retire at no distant day from that which has so long engaged my time and thought and work. I do not feel that I can leave to those who are just beginning their life's work a better legacy, one that will be more fruitful of good results in every way, than to urge them to cultivate assiduously a discerning spirit, and to carry it into the apparently minute and trivial details of daily professional life. From this method rich harvests are to be reaped; without it, life will bring but little fruitage worth the gathering either in fame, honor, money or a clear conscience.

I have often compared the contrasts of our professional life to the violin and the performer. How great the possibilities! From the four strings with the same bow one brings forth painful discords, wails of sound and angry dissonance. The master touches its chords and earth's richest melodies break forth—the lark, the nightingale and all sweet songsters enrapture the ear; the pattering of rain drops, the distant thunder, almost celestial harmonies, greet the ear, and the enraptured soul would almost break its fetters to find that golden land where no rude chord breaks on the ear, but where angelic strains forever lull the wearied soul to rest.

*This paper was read before the Tri-State Medical Society, in Chattanooga, Tenn., October 3, 1895, and has not heretofore been published. The author, who is now eighty-one years of age, is still engaged in practice, having been in active work for fifty-seven years, including nearly four years in the Confederate Army.

Just so in our own calling with the growth of a ripening experience and reflecting studiousness there comes to us the revelation that the ailments of life that are subordinate to human skill can, in the main, be met by few and simple remedies. The knowledge of their proper application defines the difference between the master who properly adjusts the harmony of the human instrument out of tune and him who with false beacon light lures unwittingly and unthoughtedly, and yet responsibly, to deeper ills, and perhaps final wreckage.

The reflection that suggests itself in the report that now follows briefly of a few cases is this, simply, that they had not been thoughtfully investigated, that they required no more skill for their relief than was in the range of the average practitioner, which, however, had not been applied through the years that some had suffered.

In December, 1886, there came into my office Colonel D., a man of fifty years, head white as snow, tall, stooping, hollow-eyed and cadaverous looking, save that his complexion was a deep bronze yellow. He informed me that he had liver complaint, which his appearance seemed to justify, and had been an invalid for thirteen years; that life was a burden to him; that he had almost lost hope and had despaired of relief. He had been referred to me, and then asked me if I could help him. The case looked so unpromising in its outlook that I could not give him any assurance of relief. Eliminating the ground work that had been gone over by others, I was led to a careful analysis of his urine, which revealed a high specific gravity and a very large amount of sugar. A rigid diet scale was ordered and strictly carried out. Sulphide of calcium was given in one-grain doses three times daily. Cascara as a laxative was ordered as required to meet the somewhat obstinate constipation, with *nux vomica* to enrich the blood and dominate the nervous system. At the end of three months the sugar had entirely disappeared, the swarthy complexion was entirely gone, despair had given way to cheerful hope, and he was a new man, and so he remains, for I saw him well and hearty a few days since attending to the active duties of his business life. In this case, through all these years, no examination of the urine had been made.

January 26, 1887, a gentleman, about forty-

five years of age, came to my office for examination. Told me he had a distressing hacking cough, was feverish, and was impressed with the idea that he had consumption. Treatment had been of no avail. He came asking for at least temporary relief, until he could dispose of his comfortable home and valuable property and move to Los Angeles, where he thought climatic surroundings might prolong life, or at least make it more comfortable. A most careful examination failed to reveal any such lesion of lung tissue as would account for his distressing symptoms. A careful analysis of his urine revealed a high specific gravity with a large quantity of sugar. A rigid diet, excluding all starchy foods, was ordered, and laxative and constructive treatment directed. In two months' time the cough was gone; he steadily gained flesh, and was soon able to resume an active business life, which he was enabled from that time continuously to pursue. When I last saw him he was in the acme of robust and vigorous health. In this case no analysis of the urine had been made prior to my prescribing for him. In the repeated urinalysis, the testimony of a diminishing specific gravity, with the lessening amount of sugar, enabled me to give the favorable prognosis which time verified.

On December 24, 1890, there came under my care a lady of fifty, tall, fleshy, weight 238 pounds. Her complaint was of frequent and agonizing headaches, inability to exert herself without difficult and distressing respiration. To climb a flight of stairs was almost to lose her breath; hands and feet cold, inclined to puffiness about the feet and ankles almost at times to extreme tension; of constipated habit; food repellent; life a duty, and yet a burden; nights restless and wakeful; sleep unsound and disturbed. Her social duties were exacting; her duties as a leader in charitable works, though faithfully attended to, had become irksome, and the whole round of life was wearisome. Her urine had been repeatedly examined. She had been advised that there was some lesion, and herself suspected Bright's disease. Analysis of the urine plainly revealed the cause—sugar. She was at once placed on rigid diet, and all starchy foods excluded; meats particularly here with milk and eggs were ordered to be used abundantly. She was absolutely enjoined from her public duties, with all possible discharge from social functions, and instructed to lead as

quiet a home life as practicable. She was a perfect patient, obeyed injunctions to the letter, and improvement was steady. In twelve months' time she lost sixty-two pounds of flesh, weighing 176. Life had become a joy, the clouds were gone. She could ascend a flight of stairs with ease; the headaches were gone, and the duties of her social station were reassumed with comfort to herself and pleasure to others. I saw her to-day (October 2), just in from her summer outing, in perfect health of mind and body—nearly four years gone since her restoration. Her greeting was: "Well, doctor, I am perfectly clear of all ailments, but have gone up to 190 pounds, so I shall at once resume my old diet scale." Here, if the lesion had been previously discovered, there had been no restriction in the diet. This restriction was the potential factor in her recovery.

As opposite to a simple deduction to be made in connection with the case just quoted, I give another. Whether any careful examination had been previously made in this case I am not able to say. March 5, 1895, there came to my office a gentleman of fifty-five, with florid face, apparently in vigorous health, tall, of commanding appearance. He gave his weight as 315 pounds. He complained of constant annoying pain in his back that gave him no rest and rendered him incapable of attending to his duties, intolerable thirst and frequent urination day and night. The specific gravity of his urine was 1041, loaded with sugar. Rigid diet was ordered. He was directed to take one grain of sulphide of calcium four times daily, with cascara at bed time as a laxative. Improvement was steady. In the early summer he resumed his duties as civil engineer with all its exposure. Only a few days since he came to my office rejoicing in perfect health. His weight was then 255 pounds, a loss of sixty pounds in a little more than six months.

The note made here is the tendency in this condition to put on fat at the expense of muscle, and to lose it oftentimes very rapidly with returning health, as made markedly evident in these two cases.

On February 26, 1894, I visited a gentleman of forty-five, who had become almost bed-ridden as the result of inanition from an apparent dyspeptic condition, for which he had been treated for nearly two years. He had about lost hope of recovery, and appearances

seemed to justify his conclusions. Urinalysis was made, and sugar in abundance was found. Rigid diet was ordered, with bitter vegetable tonic and laxative treatment. Improvement was marked. The sugar steadily disappeared, the dyspeptic symptoms gradually gave way, and in four months' time he was well, and remains so, unless imprudently indulging in rich diet, when he has warning and takes heed. I saw him yesterday, a grateful patient, greeting me with the words, when a bill was rendered for some minor service, "Doctor, I ought to pay you whatever you ask, for you saved my life." No previous analysis of urine had been made.

Two more cases of interest will close this clinical record.

May 24, 1895, a young lady of twenty came with her aunt to my office for treatment. Had been a semi-invalid for months, was thin, sallow, of dejected appearance and despondent as to her condition: constant headache, sleeplessness, scanty, irregular menstruation, listless, of fitful temper, tongue coated, constipated habit and loss of appetite made up the most salient group of symptoms. Had been treated for months, and was steadily growing worse. Analysis of the urine showed up sugar largely. Under rigid diet, with simple bitter tonic and laxative treatment, the sugar gradually disappeared, the threatening symptoms of mental despondency and other ills gave way, health returned, and in three months' time she was discharged, well and happy, and so remains. In this case no analysis of the urine had been made in the distant State which was her home prior to her coming under my care.

The last case to be quoted came to my office early in August of this year—a young man of twenty-seven. For nearly two years he had been suffering with a constant sense of unsteadiness and tendency to rotation in his gait, glimmering before his eyes and dazed feeling, which, without loss of consciousness, greatly distressed him. In a public audience room he always chose the back seats, so that he might readily retire or be taken away if unable to steady himself. As about a year before I had treated an older brother in a slight diabetic attack, whose symptoms were loss of appetite, excessively cold hands and feet and great susceptibility to catarrhal attacks, and relieved him, my

attention was directed in the same way, and as no urinary analysis was made before he came to me through all the months of treatment, one was made with very decided evidences of sugar, specific gravity 1031. He was ordered absolute diet, with cascara as a laxative at bed time. September 30, the last analysis made still showed sugar, but in diminished quantity. For more than two weeks every one of the symptoms given have disappeared, and he walks erect, steady and with clear vision.

This closes the clinical record with its varying and kaleidoscopic train of symptoms, differing in every case,—all susceptible of relief, and yet for want of simple reflective consideration within the easy reach of any thinking mind, suffered on through weary months and years. This, too, is but one phase; it runs alike through all the gamut of human woe and suffering that craves relief but fails to find it because men will not take the time to think, to study, to differentiate.

I find in my Princeton College autograph book, date of March 24, 1852, over the signature of Herman R. Timlow, of Amity, New York, the following sentiment, which is worthy of being engraven in a tablet of gold, condensing in a few words as much of human wisdom as can be found outside the pages of Holy Writ:

"Seeking, accepting, giving, make nearly the sum of all necessary knowledge. Who seeks, investigates, entreats and asks; who accepts, hears, fixes and applies; who gives, communicates, gladdens and enriches."

It is with this spirit, and with this alone, that I have presented this paper. That the seed sown may bring a rich harvest is my earnest desire.

It is scarcely possible that this gathering shall ever reassemble as a unit; the changes of life are too great. My parting wish for you all is embodied in the closing verses of a thoughtful little poem, "The Silent Boatman," which I have thought might be appropriately used on this occasion:

"Over hill and over valley,
Over land and over seas,
Where dim shapes fantastically
Float on every idle breeze,
Flows a dark mysterious river.
Shadowy, dim and stretching wide
Where a silent boatman ever
Rows across the phantom tide.

"Grimly stands the boatman calling,
Beckoning with spectral hand
To the weary that are falling
In life's strife, on sea and land;
And the travelers are legion
That he ferries to the shore
Of that near, yet distant region,
Whence return is never more.

"Prince and pauper, priest and pagan,
Silken robe and tattered coat,
Whate'er their creed, whate'er their station,
Side by side sit in his boat.
All one common way are going,
Worshippers to the same fane,
With the silent boatman rowing
To the Holy King's domain.

"Dark the river is and dreary,
And the shore beyond is dim,
And the travelers are weary
And the boatman's stern and grim;
But beyond the river's shadow
Lies a heavenly Eldorado—
Lies the Kingdom of the Blest.

"Travelers journeying to that kingdom
When the night is growing dark,
As they enter the dominion
Of the boatman and his barque,
Often hear harmonious voices
With melodious music blend.
And each traveler rejoices
As he nears his journey's end."

709 North Sixteenth Street.

THE USE OF ALUMINUM PLATES IN CLEFT PALATE OPERATION.*

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I beg to report the use of aluminum plates in cleft palate operation as I have found them of great value. Usually four plates are sufficient. These are made from thin sheets of aluminum, and are about 5 mm. by 7 mm. in size, having a perforation in each end for the silver wire.

After the flaps are loosened from the sides, a double needled wire suture (I use No. 27 silver wire) is used, the needles of which are placed, one through each opening of one of the plates, then one needle is passed through the flap about 7 mm. from its raw edge and brought out in the cleft; the other is then passed through the flap about 4 mm. from the first and 7 mm. from the edge of the cleft and brought out in the cleft, thus bringing the aluminum plate

*Read before the Medical Society of Northern Virginia and the District of Columbia, November 19, 1913.

down on the loosened flap. The needle is then passed underneath the opposite flap and brought out on the front surface, passing through the flap 7 mm. from the edge of the flap. The second needle is passed through the flap and brought out on the front surface passing through the flap about 4 cm. from the other, running parallel with it. The two needles are then passed through the two openings of the second plate respectively. Both ends of the wire are then loosely twisted together. A second set of plates are now placed in a similar manner opposite the horizontal plates of the palate bones, the widest part of the cleft and the part most likely to give way on account of the greater tension at this point. A series of from 8 to 10 fine wire sutures are now placed along the edges of the two flaps so as to draw the edges together accurately after which the ends of the wire of the plate sutures are brought up and tightened according to the amount of tension deemed necessary by the surgeon.

There are two distinct advantages in the use of these plates. In the first place there is absolutely no danger of their giving way. Second, in case the wire suture in the edge of the palate sloughs out or cuts out there is still a support for the flap, and by making additional tension on the wires the separated flaps can again be brought together. Unquestionably, the amount of tension on the wire sutures in the edges of the flaps is greatly lessened or entirely obviated, and this prevents the cutting out of the sutures, which is so often the case. There is really no reaction from the presence of the plates, and foodstuffs and secretions do not accumulate on them. The only objection that could be made to the use of the plates is the length of time it takes to place them, and that should not be more than a few minutes.

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THE POLLUTION OF STREAMS.*

By MOSBY G. PERROW, M. A., Ph. D., Lynchburg, Va.
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In dealing with the complex subject of stream pollution, it is well to call to mind the several services that streams perform. Streams supply communities with water, furnish power to manu-

facturing plants, give passage-ways to boats of commerce and pleasure, and drain the territory of the watershed. They also afford the means of earning a livelihood to thousands engaged in fishing. Interference with the discharge of any of these duties may properly be called stream pollution.

Of course, there is no such thing as an unpolluted stream. The surface wash of rains conveys myriads of bacteria together with particles of clay, sand, and vegetation. Only a downward glance during or after a rain is proof enough that part of the soil is violently detached and swept along. Water from underground flows constantly, holding in solution whatever mineral matter could be dissolved during its filtration through the earth. The excreta of animals are also added either directly or by the irregular wash of floods. In other words, all streams are necessarily polluted, and it is only the degree of pollution that can ever come into discussion.

But what is ordinarily meant by pollution are sewage and the wastes from manufacturing plants; and the question is often asked, and properly asked, what treatment ought these effluents undergo before they are allowed free access to the stream? Demands are frequently made, and laws sometimes enacted, that sewage be purified before it be permitted to flow into a river. Such a demand or law is based on a mistaken view of sewage purification. In the first place, as practised now, there is no such thing as sewage purification, if by purification is understood freedom of effluent from danger. The word "purification" is used, but it is a misnomer, and the term should be abolished. What is meant is sewage "treatment"; and sewage is really treated not primarily to destroy pathogenic bacteria, but to abate a nuisance. If an enormous quantity of sewage is turned into a small body of water or into a water where there is an insufficient supply of oxygen, the result is certain to be an unsightly stream and an evil-smelling one. Sewage disposal works here are necessary to eliminate the nuisance and should be required by law if there are any people living in the vicinity. The law, however, should exact a practicable method of treatment, and not an impossible one. The sewage can be easily rendered inoffensive to sight and smell; it cannot by any reasonable expenditure be made safe to drink.

*Read before the Sphex Club, Lynchburg, Va., October 3, 1913.

A large number of cities turn their sewage directly into streams without any treatment whatever, and in many cases no treatment is needed. Bodies of water have a natural capacity to receive and dispose of sewage, and it would be foolishness not to avail ourselves of these facilities so opportunely given us by nature. Streams are, as it were, the continuation of the intestine, and are, therefore, the proper channels for the flow of sewage. There is this difference: in the intestine, infection develops; in the stream, infection disappears, and will always disappear if only given time. We have all heard the argument *pro* and *con* about streams purifying themselves. Formerly, it was dogmatically asserted that a stream purifies itself every seven miles. Scientific investigation soon dissipated this view, and the pendulum swung to the other side. The opinion was now advanced and stoutly maintained that running water does not purify itself at all excepting only by dilution. Both of these views, of course, were extreme, and are now known to be untenable. Water, as already stated, will always purify itself if it is afforded time. The time element is what is lacking when pollution at a point above appears in the river unchanged at a point below. Only give time and the contamination, both as dangerous and as offensive contamination, will disappear. The pathogenic germs will die and the putrescible organic matter will oxidize. An investigation into the condition of the Illinois River by the Illinois State Board of Health in 1901 showed that in the 280 miles from the Chicago outlet to Grafton, the river had by natural forces completely freed itself from pathogenic microbes. In the words of the report, "It may be safely said that if the whole of the sewage of Chicago were to be excluded from the Illinois River, the condition at Grafton would remain unchanged as far as organic content and bacterial organisms are concerned."

The question now is pertinent, if a city at will allows a large quantity of sewage to run unpurified into a stream, where is the city lower down to get its drinking water? The answer is, out of the same stream, of course, unless some other better source of supply is at hand. But not out of the same stream until the water has been filtered in a modern and scientifically managed filtration plant. The use of a modern filtration plant, together with

chlorination, yields a water from which 99.9 per cent. or more of the bacteria have been uniformly removed. "There is no reason to believe," in the phraseology of Allen Hazen, "that any appreciable danger will result from the use of such water, even when drawn from the most highly polluted sources that are now in use for public water supplies." In Germany and England the streams are contaminated in much higher degree than are the streams in America, and yet the typhoid fever rate is markedly lower. Sewage treatment is, indeed, required by law in these countries, but it is strictly sewage treatment to prevent nuisance, and not an attempt at purification. After this treatment the rivers are still more highly charged with bacteria than ours are. The reason, of course, for the low typhoid rate is the thoroughness of the water filtration, which in Germany is also required by law.

Disraeli once observed that it was the highest duty of the statesman to promote the public health. The statesman, however, or at least the man in direct control of the money to be expended for public health, must consider in what way the money will get the best results. In other words, how will a dollar save most lives? It must be conceded that after all the money spent on sewage treatment in America, no statistician has yet shown from its use any reduction in typhoid or mortality rates. From a public health viewpoint, sewage treatment has been practically a failure, and in the present condition of our knowledge, funds should be appropriated to make perfect the water purification works before a cent is given for sewage treatment.

Sanitarians are now one in the opinion that water from rivers should invariably be purified before used as drinking water. It matters not whether any city or town is situated on the stream above, both experience and analysis show that the water is unsafe without some form of purification, the form to be determined by local conditions. McLaughlin (*Hygienic Lab. Bull. No. 89*), in his investigation of the Missouri River from Sioux City to its mouth, found that the river "at points farthest removed from the cities furnishes a raw water for drinking purposes that not only is unfit for drinking without treatment, but which requires very thorough treatment." In other words, if the city sewage were excluded, the water of the Mis-

source would be highly polluted and totally unfit to drink without purification. If water filtration works are necessary then in all cases and, when properly constructed and managed, are uniformly reliable, why expend money for sewage works, which at best are expensive and untrustworthy, unless forced to do so to avoid a nuisance?

It is possible that pollution may attain to such an extent (I do not know at present of any such case) that the water filtration works would reach the danger point of being overburdened. If such a contingency should by any possibility arise, special investigation should be made to ascertain the correct course to pursue. It might be safer and cheaper to improve the water plant. The problem is purely an economic one, and ought to be dealt with as such.

Trade wastes present a somewhat different aspect. They are seldom a menace to the public health, but merely a simple nuisance, and should be abated as any other nuisance. As an illustration, the acid-sulfite mill on James River at Covington may be cited. The waste liquor, acid in reaction, runs directly into the stream, making the water lower down the river to appear an inky black. This color both in Lynchburg and Richmond, caused a great deal of complaint, and the citizens for the most part on account of its presence either boiled the water or refused to drink it at all. Lynchburg finally abandoned the James altogether and sought an upland water supply in the Pedlar River at a distance of twenty-two miles. So far, therefore, the effect of the pulp waste was beneficial, and no doubt resulted in the saving of thousands of lives, for, while it itself added no disease germ to the river, it caused the people to suspect the water which was otherwise really dangerous. When, however, Richmond, endeavoring to improve its supply and being limited to James River as a source, finds it impossible after the installation of an appropriate purification system to remove all the color, the people of Richmond are entitled to a clear water, and no factory or mill should be allowed to deprive them of this right. Color lessens the attractiveness of drinking water, and as a measure of public health water should be as attractive as possible.

Pollution must be considered in several other respects, notably its effect on shellfish. Undoubtedly, oysters may become polluted and

spread disease, although so far little disease has been actually traced to this source, and apart from places where oysters are "floated" few beds are probably appreciably endangered. This, too, is largely an economic question, but it should always be borne in mind that under no circumstances should a polluted food be permitted to go on the market.

To summarize, a certain amount of dangerous pollution in streams is unavoidable. All river water requires purification before it is fit to drink, and the money had better be spent on the most thorough possible purification before any is expended on sewage treatment. Sewage treatment is mainly to prevent nuisance, and, if experience counts for anything, has up to the present time had small, if any, influence on the public health. Factory wastes are usually nuisances, and as such should be abated like any other nuisance.

ETIOLOGY AND PATHOLOGY OF SYPHILIS.*

By COURSEN BAXTER CONKLIN, M. D., Washington, D. C.

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From the days of H. Fracastoro, who wrote in the 16th century and is reputed to be the first writer to make use of the term syphilis, medical literature has been replete with the efforts of syphilographers. The most brilliant minds in each generation have been directed in search for the exciting cause. The general etiological factors of syphilis, such as its communicability through impure sexual contact, the possibility of innocent inoculation, and its hereditary transmission, have been long recognized. Indeed, it is surprising, in reading the works of the earlier writers, to note the accurate knowledge of the disease that existed, but it remained for workers during the present epoch to isolate and define the micro-organism responsible for the scourge. We should revel in the fact of our being contemporaries with the discoverer of the cause of such a death dealing Titan as syphilis.

As Koch will be immortalized for his success in isolating the tubercular organism, so will Fritz Schaudinn's, Hoffman's and

*Read before the Therapeutic Society of the District of Columbia, in a Symposium on Syphilis.

Noguchi's names be constantly associated with the successful work in the isolation of the organism causing syphilis. The work of Legreve, Lancreaux, Metchnikoff, Roux and even the misguided Lustgarten, undoubtedly contributed its mite toward the German proto-zöologist's success.

The organism, as described by Schaudinn in 1905, is that of a feebly refractive spiral protozoa, classified first as a spirochaete and later as a treponema; and on account of its low refractile power, it was called the *treponema pallidum*. The distinguishing difference between the spirochaete and the treponema is that the spirals of the latter are constant even in the resting stage. The question whether the spirochaete, as we shall designate the organism owing to the greater popularity of the term, is a part of the animal or vegetable kingdom, was long a source for debate. Schaudinn and Hoffman were convinced that it should be classed with the protozoa, while Metchnikoff and Roux were positive that it should be classed with the bacteria. In length, the organism is from four to fourteen microns and about one-third to one-half microns in thickness. By special staining processes flagella may be defined. Three forms of motion have been described: a rotation on its longitudinal axis, flexion, and a backward and forward movement.

The spirochaete has no specific staining qualities. Hot carbol-fuchsin and gentian violet will give a successful result. A recent article describes a method of staining with India ink, which will leave the organism in relief on a stained back-ground. The ultra-microscope has assisted greatly in obtaining our present knowledge. By means of this instrument the rays of light entering from below are deflected in such a way, as to cause the feebly refractive organism to be easily studied.

The recovery of the spirochaete from the chancre is comparatively easy. Cases of hereditary lues are hosts for an abundance of spirochaetes, while in cases of tertiary infection they are much less in evidence.

Considering the organism from a biological standpoint, it is found that a temperature of forty-five degrees centigrade causes immediate immobilization, while even under ordinary circumstances isolated spirochaete lose their activity in from five to six

hours, a most providential occurrence, when we consider the ubiquitous purveyor. Efforts at artificial cultivation have been, until quite recently, disappointing. Success in growing the organism outside the human body, with which being able to infect animals, and then to recover the organism was known to fulfill the last of Koch's postulates and to dispell any doubts as to the specificity of the spirochaete. Neisser, Baermann, Hoffman, and others were ardent workers in this field. MacIntosh took a step toward the goal, when he succeeded in obtaining an impure culture by implanting into the peritoneal cavity of the monkey, collodion sacs containing the organism suspended in human serum. It remained, however, for a worker (in an American laboratory) to furnish the conclusive evidence as to the guilt of Schaudinn's spirochaete. Noguchi, during the latter part of 1910 and the early part of 1911, by using sheep serum water, to which a piece of sterile rabbit tissue was added, as his media, succeeded in growing the organism. A piece of rabbit testicular tissue previously syphilized was used for inoculation. With the growth thus obtained, animals were successfully inoculated and the spirochaete again recovered.

In consideration of the effects of the development of the spirochaete in its host, we shall describe the three prime macroscopical evidences of the disease, viz, the chancre, the mucous patch, and the gumma and then give something of the fundamental histo-pathology.

The chancre or the initial lesion usually occurs singly, whereas there may be any multiplicity of mucous patches or gummata. The chancre is superficial, mostly in the epidermis. The induration which accompanies is due to occluded blood vessels. The mucous patches occur with great frequency in the mouth or on the genitals. Syphilis, from the gumma occurring during its tertiary stage, is well classified with the infectious granulomata. Gumma may occur in any tissue, but most frequently it is found just beneath the skin.

Microscopically, the capillary when attacked shows the ordinary phenomena of inflammation. The exudate forms the so-called coat sleeve induration around the vessel wall, in which can be seen in a connective tissue frame work small round cells, plasma cells, together with other

tissue cells, and occasionally giant cells are found. When properly prepared the spirochaete can be defined. The superficial ulceration of the chancre and the central degeneration of the gumma are caused by the occlusion of blood channels. Gummatous ulcer is an excellent appellation for the chancre. Endarteritis with its accompanying thrombosis and its tendency to afford embolic particles gives the opportunity for anaemic infarcts and even gangrene. The connection between syphilis and cerebral embolism has of course been long well known. The similarity between the pathological findings in syphilis and tuberculosis is rather close. The giant cell is found in both, but by far more often in tuberculosis than in syphilis. Lymphangitis and hyperplasia of the lymphatic glands are characteristic syphilitic findings. The old saying, "No syphilis *sans* bubo," is particularly appropriate. The syphilitic toxin seems to be responsible for the overproduction of connective tissue, such as is seen in the thickened arterial wall and in the various so-called para-syphilitic affections.

We have already seen the advances in the line of diagnosis and treatment made possible by an accurate knowledge of the causative factor of syphilis. Is it too much to look forward to even a further diminution of its ravages through the work of Fritz Schaudinn, Hoffman and Noguchi?

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1312 R Street, Northwest.

THE MANAGEMENT OF APPENDICITIS IN RURAL DISTRICTS.*

By A. M. BURFOOT, M. D., Fentress, Va.

Appendicitis up to twenty-five years ago was practically unknown. Since that time, however, our knowledge of this disease has so increased that it is now readily recognized. In fact, I am of the opinion that more daily surgery is being done for appendicitis than any other one disease requiring surgical aid. From the fact that this little organ, called the appendix, is giving

so much trouble, and the treatment, from a medical standpoint, is so far from what we wish it to be, the question arises as to the management of such cases.

As the title of this paper indicates, I shall limit my remarks to the management in rural districts. I trust, however, the treatment, diagnosis and etiology may be freely discussed, and especially that the surgeons present may give us fellows who have these cases in rural districts some valuable information as to the handling of same before reaching their hands.

As this Society is made up very largely of country physicians, and this problem of handling appendix cases is giving me so much serious thought and trouble in my work, it occurred to me that this is the time to get help.

It may not have occurred to all you gentlemen present that a case of appendicitis many miles from a hospital is entirely different from one in the city, so far as the management goes, where you have hospitals and all other conveniences for its proper handling. In rural districts we have four difficulties which seriously handicap us in any attempt we make to properly discharge our duty:

First.—The case is usually, not always, well advanced before we are called, and a majority of all cases I have had have been pus cases, as operation has later shown.

Second.—Usually, not always, much valuable time is lost in sending to the city for ice, which is, as you know, our first sheet anchor in an attempt to stop the disease, or, I might add, our first attempt at its proper management.

Third.—After finding that an operation is the only thing which will relieve the patient, there arises the prejudice which the average layman maintains against the hospital. Then probably another twenty-four hours of valuable time is lost in giving the patient or relatives time to think over the hospital question, and part of this time also for the physician to convince them, if possible, that hospitals are not "wholesale slaughter-houses."

Fourth.—After your patient decides to go to the hospital for operation, the next vital question is one of transportation. Sometimes we find these cases in remote sections, which makes it necessary to drive with the patient many miles over rough country roads to reach the railroad. Many times it is necessary to drive some distance to a boat, thence to a train, before

*Read before the Seaboard Medical Association of Virginia and North Carolina, at Norfolk, Va., December 9-11, 1913.

the hospital is reached. You will very readily see that these are very unfavorable conditions for handling a severe case of appendicitis, yet we have many doctors here to-day who are confronted with just such conditions as I have mentioned.

Now, I presume, you city men present can get some idea of the difference between the management of your cases and the cases we country fellows have to manage, and I am sure that you will agree that the conditions with which we are confronted in treating these cases are serious and difficult.

Now, in view of the above facts, what is the best way to handle these cases? From an experience of eight years, with practically every type of appendicitis, I have reached the following conclusions:

First, I believe, yea, I know, that each and every case occurring where hospital facilities are not convenient should be considered a case for the surgeon, and an attempt to place the patient in his hands as soon as possible is the right thing for us country doctors and the wise thing for the patient. I will mention a few cases illustrating this.

Case 1.—A negro man, about twenty-five years of age, showed well-defined symptoms of appendicitis, symptoms of peritonitis developing twenty-four hours later. Patient immediately placed in wagon and hauled twenty-five miles to hospital. Dr. Kirkland Ruffin operated through an incision about nine inches long, and I doubt very much if as much pus ever came out of a human being, and the person live, as was the case with this man. Dr. Ruffin asked for a post-mortem immediately after the operation, and the darkey very kindly consented, and, indeed, it seemed to grieve the darkey that the doctor could not hold the post-mortem, because this was all the fee he was to pay for the operation. What Dr. Ruffin did to the man after that time I do not know, but I do know that he came home and soon afterwards deserted his wife and children, and has been arrested several times for having an unusual fondness for women.

Case 2.—A young white man, about twenty-one years old, was taken sick in Norfolk. A physician was called, and so plain were the symptoms of acute indigestion that a diagnosis was so made. Next morning he took the train for his home, where I was called. At that time

the symptoms of appendicitis were positive. He did not seem to be desperately ill, but I immediately sent him to the hospital, and Dr. R. L. Payne, who operated, found a bad pus case. However, the operation was successful and recovery was practically complete after about four weeks.

Case 3.—White woman, nearly sixty years of age. Her symptoms were positive of appendicitis at first visit. Twenty-four hours later she seemed to all appearances to be better, judging from pain, pulse, tenderness over McBurney's point and temperature. Her age led me to think that possibly I was mistaken, yet the expression of her face made me positive, if she had not appendicitis, something was vitally wrong in her abdomen. She was an unusually good Christian woman, and I felt to advise operation was the proper thing. This I did, and she was placed in a large automobile and carried to Dr. Frederick Lawford's Hospital, in Berkeley. When the abdomen was opened, much to my surprise, a very profuse flow of pus immediately started, and a long gangrenous appendix was in full view without any effort to locate same. This patient died two days later, being unable to survive the general septic condition which was present.

Case 4.—A young, hearty, robust white woman, about twenty-five years of age. Symptoms positive of appendicitis, with general peritonitis at first visit. She gave history of having had appendicitis before. In a few hours she was in the hospital and operated on by Dr. Lomax Gwathmey. Death followed in about twelve hours.

These four cases illustrate in a large measure all the cases that have fallen in my hands. I believe the last two would have lived could they have been managed properly—in other words, had the operation been performed earlier. The first two would have been saved a close call and a long stay in the hospital if they, too, could have been taken in time.

Statistics show a mortality rate of one-half of 1 per cent., or one case in every 200, if operating under favorable conditions. If not taken in time, however, it runs up to anywhere from 15 to 50 per cent. Now, then, promptness in these cases means a very small death rate; delay means the death of one-sixth to one-half—a vast difference, and a lesson which I hope we all may readily grasp.

In further contention that these cases in rural districts should be handled quickly, I would call attention to the fact that it has been considered bad surgery for many years if, for any reason, the abdomen has to be opened and the appendix is not removed. Again, it has been proven beyond the shadow of a doubt, that after the removal of the appendix many people have been relieved and frequently cured of many and varied symptoms which before had caused life to be anything but pleasant. Then it frequently does good besides curing appendicitis. Again, if any one has been the worse off for having the appendix removed (that is, so far as any function it may have) it has never been enough in evidence to claim the attention of investigators. Therefore, those of you who are my country co-workers, if you should make a mistake in diagnosis and the patient be operated upon, why, in the light of our present knowledge of modern surgery, we have done no harm, but more often, as before stated, we have done good.

Then the proper management, I should say, is to act even more quickly than the city man for the reasons before mentioned. Promptness means a saving of life. Delay means danger and frequently death. In my endeavor to make this matter of management strong in favor of promptness, it might be well just here to bring out the point of too speedy operation, where the country doctor accompanies a case to the hospital and wishes to see the operation, or to be present because the family requests it. If your case does not demand immediate operation, do not embarrass the surgeon by forcing him to operate too soon. Give him time to study his case, and the patient time to be made ready. This, gentlemen, is true, not only of appendicitis, but of all surgery.

It has recently occurred to me that where we are confronted with poor transportation facilities, such as have been mentioned, which shake up the patient in moving to the hospital, and the patient shows symptoms of pus formation, peritonitis developing, and being altogether in bad shape, it might be well to have the surgeon operate in the home of the patient. I fully realize the great disadvantage of operating in the average home. Yet the surgeon can come with nurse, all dressings and instruments sterilized, and what other preparation may be necessary, such as arranging operating room, may be done by attending physician beforehand. This, of

course, would be operating under very unfavorable conditions, yet I am inclined to believe that there are many cases in which life would be saved by this method, which otherwise would be fatal as the result of the great tax upon the patient's strength in removing him to the hospital. In other words, the surgeon had better be put to the disadvantage of operating under unfavorable circumstances and the patient live, than to have everything convenient and the patient die. This, however, is an idea which I have not, as yet, put into practice. But it does seem to me that I have lost some cases in which the life might have been saved but for the patient reaching the hospital in bad shape as the result of a rough trip.

Yet the question still remains that the management of appendicitis in rural districts is a very serious problem, but that the question may be solved for us here today is the aim of this paper.

MALARIA.*

By WILLIAM DANDRIDGE TURNER, M. D.,
Ocean View, Va.

Somewhere about sixty-five years ago there was an epidemic of malaria, or chills and fever, in the Valley of Virginia and around Winchester; and this same condition of affairs existed again about fifteen years ago.

It was eight years ago, I think, in talking to Dr. E. C. Levy, I told him I thought I had found, to my satisfaction, that the mosquito theory was not the true theory. After telling him about some observations I had made, I distinctly remember his remark that what I was saying to him was destroying the theory then recognized by the entire world; and his saying that if I would send him the blood of the patients experimented on, he would gladly help me in the investigation.

I claimed at that time that it was altogether a matter of water, and went on to tell him of the following experiences.

I never let my cook and her husband drink any water except from a cistern; but her house was not screened from mosquitoes. They were entirely free from malaria.

Charley, my man about the house, and Bertha, his wife, lived about two hundred feet dis-

*Read before the forty-fourth annual meeting of the Medical Society of Virginia, at Lynchburg, October 21-24, 1913.

tant from my cook. They had their house screened perfectly; but I allowed them to drink spring water, and they had malaria in an aggravated form.

Mr. M., the manager of my plantation, lived a mile away from my house. His house was perfectly screened; but he and his family drank well water. Every one of them had chills and fever.

Mr. J., who lived about half a mile from Mr. M., drank water from a large flowing spring. He and his family had malaria every fall and summer so severely that one year one of his children had a "yellow chill." This so aroused him that he took my advice and built a cistern. Malaria in his family became a thing of the past until about three years ago; but my talk with Dr. Levy was before that time, when they were free from it.

My house had always been well screened; but we drank well water. For two years, my wife suffered constantly with malaria. I then built a cistern, and kept her out of the night air, and cannot recall that she had a chill from that time on for twenty-five years. Living directly on the river and with a marsh in front of the house, we have myriads of mosquitoes. About eight years ago I dug artesian wells, and now have an abundant flow of artesian water. About the same time I changed my method of farming, and rented to tenants. Mr. J. had the farm near my house. His family could not be dissuaded from drinking spring water. They all had malaria, and he to such an extent that he could not attend to his business. Dr. W. L. Ward, of my county, attended him and insisted that they should stop drinking the spring water and drink nothing but artesian well water. The following year they had no malaria.

Another tenant with a family of four lived in an unscreened house; but had no water on the premises except artesian. They were all singularly free from malaria except one lad of about fifteen, who would often spend his evenings away from home, and was in the habit of drinking water from the wells at the places he visited.

Mr. J., Mr. E. and Mr. G., who cultivated other parts of the plantation, had unscreened houses, drank well water, and had chills and fever.

About six or seven years ago—perhaps some

doctor from Richmond can name the time—there seemed to be an epidemic of chills and fever out in Church Hill section, but more especially in the Chimborazo section. Remembering about Winchester, I kept watch and found that the malaria seemed to be taking a course down each side of James River. When as far as Prince George County, it seemed to leave the north side of the James, and to confine itself to the south side, reaching far inland. It came on through Surry County, and when it reached Isle of Wight County, it was devastating in its effects. Dr. Ward, a practitioner of many years, told me that he had never seen such a condition of affairs. Then I told him of this theory that I had been working out, of malaria traveling in waves or currents through the country. The next year, in the same district, the malaria was very much milder; but the town of Smithfield, a place having a splendid supply of artesian water (one of the best in the world, I reckon) seemed to be in the path of this "wave," so that malaria became almost a scourge.

Ocean View, as healthy a place as any I know on earth, and peculiarly free from malarial troubles, was reached last year by that wave, as also certain portions of Norfolk. Then malaria was a problem seriously to be considered. I do not know the history of Norfolk this year, but have seen a great deal of malaria at this place so far—July the first.

If my theory is correct and the wave continues, this will be a year of malaria, at this place, and next year it will have practically passed by.

I do believe that mosquitoes are carriers, but not the sole cause of malaria. I think bad water is another and perhaps one of the greatest causes; and I also believe that this pest travels in waves or currents through the country. If my theory is correct, the wave of malaria should cross the Chesapeake Bay—provided the sea water has no influence over it—and reach some part of Eastern Shore this fall, and next year should be prevalent there.

The reason I read this paper is that some investigator may prove either that I am false in my conclusions, or else find it profitable to investigate further along this line.

Note.—October 14, 1913.—Malaria has been exceedingly prevalent at Ocean View this summer. Last fall there were a few sporadic cases:

but this summer it has been general. Dr. Sturgis, of this place, tells me that this same condition of affairs existed here about twelve years ago. Now, may not that have been a continuation of the wave passing Winchester about fifteen years ago?

In regard to this wave theory, my experience has been that malaria is more prevalent than usual the first year; in the second year it reaches its height—or the climax—and the third year the wave passes by and conditions are again as usual.

VIRGINIA'S ERRATIC DENTAL LAW.

By A. B. GRUBB, M. D., Cripple Creek, Va.

When I think of Virginia's new dental law, which requires that our coming dentists shall be graduates of medicine, I am reminded of Joly, in Victor Hugo's immortal, "Les Misérables," who said: "What is a cat?" "It is a correction. *Le Bon Dier*, having made a mouse, said to himself, 'Hilloh, I have done a foolish trick,' and he made the cat, which is the erratum of the mouse. The mouse plus the cat is the revised and corrected proof of creation."

Sometime ago this journal published an article of mine which deplored the fact that our last Legislature passed a law which required that dental students should take the full course in medicine. This is, to my mind, Hugo's mouse law, and we need the cat for a correction.

I have never yet met either dentist, physician or layman who approved of such a bill, and it is certainly hard to understand how such a bill slipped by our Legislature as it did.

To begin with, there is already a dearth of dentists in Virginia, and it is plain to be seen that the scarcity will increase very rapidly under our new law. Most of our sterling young men have not the money to take the combined courses, and, what is worse yet, many of those who aspire to become expert dental men, swift and dexterous with their hands, do not care for, and even loathe, the hard theories of medicine. Successful dental men have either a natural or a cultivated mechanical turn, and it is too much to ask that, in the short span of life, they cultivate a taste for another profession, or that they should have "two loves," for if they love one, they will flirt with the other—one may be the

wedded wife, but the other will be the concubine.

Under our present scarcity of dentists, our laboring population gets very little dental attention. A filled cavity or a new set of teeth is almost the exception with them, and it is a sad fact that many a washerwoman stands over her tub from morning till night, living on half-chewed food because she has not, perhaps, over two or three good teeth in her head. How much greater would be her output, living on well masticated food! It would be haleyon days to her if she could say, "My dentist," just as she is generally able to say, "My doctor."

The service which medicine and dentistry should render, and do render, should be an altruistic service; a humanitarian service. Let the poor have a few of the good things of life, and if it cannot be a new auto, let it be good teeth, good medical services.

We cannot hope for these things when the wall built around a profession is prohibitive, instead of efficient. For the wall to be efficient, it should require that every one should be a graduate in dentistry only, and pass the Dental State Board. It should prosecute scathingly those unprepared and untrained dentists who go over the country pretending to be licensed.

Let the motto of the profession be, "A good tooth in every head made by a good dentist."

Book Announcements and Reviews

The Semi-Monthly will be glad to receive new publications for acknowledgment in these columns, though it recognizes no obligation to review them all. As space permits, we will aim to review those publications which would seem to require more than passing notice.

Text-Book of the Practice of Medicine. By JAMES M. ANDERS, M. D., Ph. D., LL. D., Professor of Medicine and Clinical Medicine, Medico-Chirurgical College, Philadelphia. Eleventh Edition, Thoroughly Revised. Octavo of 1,335 pages, fully illustrated. Philadelphia and London: W. B. Saunders Company, 1913. Cloth, \$5.50 net; Half Morocco, \$7.00 net.

Ander's Practice of Medicine is already so well and favorably known that it is hardly necessary for us to do more than to call attention to the fact that it has now appeared in its eleventh edition. The work has been revised throughout. Almost innumerable additions have been made in individual diseases in the

description or important signs, tests, methods of diagnosis, newer treatments, etc., while quite a number of entirely new subjects have been introduced so as to make the text more complete. The book is justly entitled to the position it has taken as one of the best single volumes on practice of medicine, and there is every reason to believe it will hold its own for sometime to come.

A Manual of Otology. By GORHAM BACON, A. M., M. D., Professor of Otology, College of Physicians and Surgeons, Columbia University, New York. New (6th Edition, Thoroughly Revised. 12mo. 536 pages, with 164 engravings and 12 plates. Cloth, \$2.25 net. Lea & Febiger, Philadelphia and New York, 1913.

This manual is intended as a text for students and for reference by the medical practitioner, though it would scarcely meet the needs for the fuller discussions of a specialist. It is, however, a volume of much practicability, and should serve the purposes for which it is issued, as above indicated.

The Surgical Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. Volume II, Number VI. (December). Octavo of 186 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1913. Published Bi-Monthly. Price, per year, \$8.00. Cloth, \$12.00.

Editorial.

Virginia's Erratic Dental Law.

The Virginia Legislature passed at its last session a law—effective January 1, 1914—requiring that all persons who apply for license to practice dentistry must first be graduates of medicine and pass the Medical Examining Board of Virginia. This unusual provision of law—the only one of its kind in the United States, so far as we can learn—requires that the applicant must then pass the State Board of Dental Examiners.

The question naturally arises, what was the necessity for a law with such large requirements, that exacts for dentistry—a practice that is for the most part of very limited or local scope—a more extended college course than is demanded for the all-round busy physician, whose practice covers the field of human ailments? We confess that to answer the question is puzzling.

It may be laudable for the individual dentist to wish to know something of medicine, which,

in some instances, is true, and, *vice versa*, for the physician to know something of dentistry—a knowledge that would many a time, especially in sparsely settled districts, stand him in good stead. Dentists are to be found chiefly in the cities and small towns; the country dentist is a rarity. The physician, however, is to be found everywhere; and it is he upon whom the patient "with weary and aching head" must rely only too often because no dentist can be reached without a long and tedious trip.

The new law does not aim to make the dentist more proficient along his special line of activities; but seems instead to demand of him a knowledge for which he will likely have little need in his profession. Whoever heard of a dentist being called on either to diagnose or treat a typhoid fever, nephritis, pneumonia, metritis, piles, myocarditis, to care for an injury, to manage a neurasthenic, or deliver a baby? With what general or systemic condition that is not under the direct supervision of a practicing physician does he have to cope? If we mistake not, his chief work is mainly local. He is called upon to treat the teeth, and to repair them; he likewise has often to treat the gums, a pyorrhea alveolaris, an occasional stomatitis, etc.: mouth inflammation and infection are not, however, entirely within the province of the dentist. At times, too, it is necessary for the patient to take an anesthetic for tooth extraction, but while a few dentists will administer gas, chloroform, or ether, it is nevertheless true that a large majority of the best men prefer to have a qualified physician do this for them.

A claim advanced by advocates of the new law is that it is just as necessary for the dentist to have a general knowledge of medicine as it is for any other specialist. If this assertion can be substantiated, we will be greatly surprised. To what specialty in medicine do such advocates refer? Surely they cannot mean diseases of the eye, or throat, or skin, or nervous system, nor can they have in mind surgery, gynecology, diseases of the genito-urinary organs, rectum, stomach, etc.

What good the new provision in the law is expected to accomplish for safe-guarding the interests of the general public more than was the case before its enactment is a mystery. Of the hardships it will work on the great masses of the people there can be little doubt.

There are in Virginia at the present time probably a few more than 600 dentists, a number that is now scarcely adequate to supply the demand, while there are approximately about four times as many physicians. No thoughtful person will deny that the effect of the greatly increased requirements will serve still further to reduce the number of dentists, so that in time it must naturally follow that the limited number will be gathered in the larger centers of population, that they will be crowded with work to such an extent that their charges must be high, and, as a consequence, attention will be lacking to the poor.

We have no desire to antagonize any rational measure advocated by the rank and file of the dental profession, for which we have a high regard. We must believe, however, that this subject received sanction from their State Association before the import of the resolution approving it had been thoroughly considered. In the vernacular of the street urchin, we are led to exclaim, "For the love of Mike, be reasonable."

This erratic dental law was first called to our attention by Dr. A. B. Grubb, of Cripple Creek, Va., who directed attention to the subject in the *Semi-Monthly* for May 9th last, and he now publishes a further discussion in this issue, with the same title which we have chosen for this editorial. We endorse what he has to say, and believe that special section of the law should be repealed.

Col. Walter McCaw, U. S. A., Honored by Washington Doctors.

On December 13, a handsome dinner was tendered Colonel Walter McCaw before his departure from Washington by a number of Washington physicians. Colonel McCaw had been for ten years in charge of the library of the Surgeon General, U. S. A., and was also professor of tropical medicine in the Army Medical School. A number of bright and interesting speeches were made, Dr. Philip S. Roy acting as toastmaster. Others in attendance were Dr. Wm. Welch, of Johns Hopkins University, Baltimore; Lieutenant Colonels McCullough and Gandy, U. S. A., and Drs. I. S. Stone, W. M. Barton, A. F. A. King, Tom Williams, A. B. Hooe, G. Wythe Cook, N. P. Barnes, Walter Wells, Wm. J. Mallory, John Moran, H. H. Donnally, W. P. Carr, J. B. Nichols, Fielding

H. Garrison, Julian M. Cabell, all of the last named of Washington, D. C.

Roanoke (Va.) Academy of Medicine.

At a recent meeting of the Academy, Dr. William L. Powell was elected president and Dr. W. W. S. Butler, Jr., secretary for the ensuing year.

Appropriation for Study of Pellagra Urged.

Owing to the rapid spread of pellagra and the baffling nature of the disease, Surgeon General Blue, through the proper channels, will urge that Congress during its present session appropriate a special amount for the establishment of a hospital and laboratories in the South for the study of pellagra in all of its phases. Since the disease loomed into prominence several years ago it is estimated that there have been more than 50,000 cases in the United States, cases having been found in forty-four of the States and the District of Columbia. The special scene of its activity, however, seems to be the Southern and Southwestern States.

The Petersburg (Va.) Medical Faculty

Has elected Dr. William C. Powell president, Dr. George H. Reese corresponding secretary, and Dr. L. S. Early recording secretary for the year just commenced.

The Virginia State Epileptic Colony,

Located at Madison Heights, just outside of Lynchburg, in its fourth annual report, ending September 30, 1913, shows that there were 166 patients under treatment there during the year, and that the affairs of the institution are in a healthy and satisfactory condition. The cost per capita of maintenance during the year has been reduced to \$206.28, or a reduction of \$14.84 from that of year ending September 30, 1912.

The suggestions offered in the report, which will add to the efficiency of the institution, are the need of an assembly hall and school rooms, repairs and addition to administration building, an extra building for feeble-minded girls and women in addition to the one to be opened March 1, 1914, an additional building for boys and infirmary for the sick, with shops and playgrounds in basement, an ice and refrigerating plant, and, of course, an increased appropriation for the support of inmates, with the addition of the 165 to 175 feeble-minded and epileptic women who will be received in March from almshouses and State hospitals.

The work done by the Colony is so all-important, that we trust they may have the needed appropriation from our General Assembly this year.

The Guilford County (N. C.) Medical Society,

At its meeting, in Greensboro, early in December, elected Drs. John A. Williams and Par-ran Jarboe, both of Greensboro, president and secretary-treasurer, respectively.

Reports of Virginia's Vital Statistics Will Conform to the Calendar Year.

The vital statistics law in Virginia went into effect June 12, 1912, and thus made the report year for the State's statistics differ from both the fiscal year of the State departments and from the calendar year. To remedy this, and as the statistics prepared and issued by the U. S. census authorities cover the months from January to December, the Virginia Department of Health has, beginning January, conformed its reports of vital statistics to the calendar, so that they will cover the same annual period as those of the Federal Government.

Virginia has the honor of being the first Southern State to be admitted to the Federal registration area, and as the State Health authorities are anxious to uphold the distinction achieved, they are again urging that each and every birth and death be correctly and promptly reported.

The number of deaths reported from July 1, 1912, to June 30, 1913, was 28,626, or a rate or 13.4. It is estimated that if all deaths had been reported, our death rate would not have been above 15.

Married.—

Dr. George B. Lawson, Roanoke, Va., and Miss Julia Kern, daughter of Senator and Mrs. John W. Kern, of Indiana, at Hollins, Va., the summer home of the Kerns, on December 25.

Dr. Alfred P. Upshur,

Surgeon in the U. S. Army, with the rank of lieutenant, and now stationed in Texas, has recently been the guest of his parents, Dr. and Mrs. J. N. Upshur, of this city.

The Tri-State Medical Association of the Carolinas and Virginia

Will hold its annual meeting in Wilmington, N. C., February 18-19, Dr. Southgate

Leigh, of Norfolk, Va., presiding. The local profession is co-operating with Dr. Charles T. Harper, Wilmington, chairman of the committee of arrangements, to make the meeting a most enjoyable one, and it is hoped there may be a large attendance. Dr. Rolfe E. Hughes, Laurens, S. C., is secretary-treasurer of the association.

Changes in Medical Corps, U. S. Navy, of Interest in Virginia.

P. A. Surgeon H. F. Strine has been transferred from the Norfolk Naval Hospital to the Solace;

Surgeon W. M. Garton, recently transferred from the Naval Hospital, Norfolk, Va., has been again changed from the Kearsarge to the Solace; and

P. A. Surgeon L. W. McGuire has been detached from the Receiving Ship, Norfolk, Va., to which he was recently ordered for temporary duty, to First Regiment, Advance Base Brigade.

The Cumberland, Md., Department of Health

Announces 49 births, 28 deaths, and 4 still births for the month of December. There were 37 cases of scarlet fever, with no deaths, reported for December. This was the largest number of cases reported of any of the communicable diseases.

Dr. Walter M. Dake,

Formerly of Denver, Colorado, announces the removal of his offices to the Dugan-Stuart Building, Hot Springs, Arkansas.

Publication of Clinical Lectures.

Beginning with this issue, we will publish a series of Clinical Lectures on Nervous Diseases, by Dr. J. Allison Hodges, of Richmond. As our readers know, Dr. Hodges is well qualified along this special line, and we are confident these lectures will prove not only instructive, but interesting as well.

The American Society for the Study of Alcohol and Other Narcotics,

At its recent session in Philadelphia, elected the following officers for the coming year: President, Dr. J. J. Kindred, New York; vice-presidents, Drs. D. F. Grasse, Chicago; T. A. Mac-Nicholl, New York; Tom A. Williams, Washington, and Col. L. M. Maus, U. S. A.; secretary, Dr. C. H. Denton, Miami, Fla.; cor-

responding secretary, Dr. T. D. Crothers, Hartford, Conn., and treasurer, Dr. Pitts E. Howes, Boston.

What Will Be the Outcome of the Wisconsin Eugenic Law?

Soon after the eugenic law in Wisconsin went into effect on the first of January, it received a test, which will possibly cause it to be decided for its legality in the courts. The county clerk in Milwaukee refused a permit to a man seeking a license without his certificate of health. The clerk demands that Wassermann tests shall be made, and it is reported that Milwaukee physicians have agreed that they can give only a superficial examination, and not the required tests for the amount of \$3, which the law exacts of the man to be examined. A question has also arisen as to the injustice of the law as it applies to the man alone. The outcome of the situation will be awaited with interest.

Richmond, Va., Has Lowest Death Rate in History.

The city Health Department announces that Richmond recorded the lowest death rate in its history during 1913. There were 2,718 deaths during the year, or a rate of 20.58 per 1,000 population. Excluding non-residents, the rate was 18.33 per 1,000. There were more deaths from acute, contagious diseases than in 1912, but a marked improvement in infant mortality and the number of deaths from tuberculosis.

The Central State Hospital,

For colored insane, Petersburg, Va., has recently issued its forty-third annual report for year ending September 30, 1913. During this time a total of 1,987 patients were cared for in the hospital, and the year closed with an excess of 79 patients over the previous year. The hospital was opened in 1869 with seventy patients, and the number of patients for each decade rapidly increasing, the present fiscal year ended with 1,556 patients in the institution.

Since the isolation of tubercular patients, the death rate from tuberculosis has declined. There were twelve cases of pellagra during the year, making a total of 78 cases since the first one observed in 1908. During the year another wing was added to the building for the criminal insane, increasing its capacity to 50, which meets present requirements. The segregation of the criminal insane from other patients has re-

sulted in better discipline among the patients generally. The per capita cost for caring for patients was \$98.90.

Southern Medical Women Organize.

At the recent meeting of the Southern Medical Association, in Lexington, Ky., the Southern Medical Women formed an association which will be auxiliary to and meet in conjunction with the larger Association. Dr. Lillian South, Bowling Green, Ky., was elected president, and Dr. Rosa Gantt, Spartanburg, S. C., secretary-treasurer.

Mortality Statistics of the United States for 1912.

The registration area, from which the government statistics are compiled for 1912, embraces nearly two-thirds of the total estimated population of the United States as compared with a little over two-fifths in 1900. Virginia as a State has just been admitted for 1913, although Richmond is included with other cities of more than 100,000 population in the 1912 statistics. The total number of deaths registered for 1912 was 838,251, corresponding to a death rate of 13.9 per 1,000 population, which is the lowest rate on record since the compilation of these statistics. By sex there were 459,112 deaths of males and 379,139 deaths of females.

Tuberculosis has markedly decreased, although it caused 90,360 deaths. Next came organic diseases of the heart, with 86,179 deaths. There was also a notable decrease in deaths from typhoid fever, there being 9,987 in 1912 against 12,451 in 1911.

The N. Y. Academy of Medicine's Annual Report,

Just received, reports that during the past year the trust funds have been increased by a bequest of \$1,000 from the estate of the late Dr. Jas. P. Tuttle, to be used for the purchase of books relating to the gastro-intestinal tract. The amount pledged for the Academy extension fund to date is \$125,225, and the amounts promised are being met so promptly that the trustees are in hopes of having new quarters in the near future.

U. S. Navy Annual Report.

Surgeon-General C. F. Stokes, U. S. N., announces that in the year ended December 31, 1912, there was a considerable improvement in

the health of the navy over the preceding year. For 1912 there was a total of 48,742 admissions and readmissions from all causes, with a death rate of 4.08 per 1,000, as opposed to 50,960, with 4.12 death rate for 1911.

The number of cases of typhoid fever was greatly diminished, there being only 57 cases with 2 deaths for 1912 in comparison with 222 cases with 15 deaths in 1911. The reduced number of cases is apparently the result of the compulsory administration of typhoid prophylactic which was still being carried on during 1912. To June, 1913, about 80,000 persons were inoculated, and only 7 authentic cases of typhoid occurred in those who received the full course of inoculation. Cases of typhoid in persons who had been immunized were generally characterized by mild symptoms and rapid convalescence. Tuberculosis in all its forms showed a decrease from 1911. Chancroid alone of the venereal diseases showed an increase. While prophylactic measures have aided in the reduction of the number of these cases, the figures prove that, although beneficial, venereal prophylaxis is not producing the results at first hoped. We have selected reports of the above named diseases from the full report as being the ones which seem to be claiming the greatest attention of the profession at this time.

Bulletins on Children's Diseases Issued.

The State Board of Health announces that it has sent out special bulletins on the diseases of children to its regular mailing list, but that additional copies will be sent free, upon request of the Department, Richmond. These bulletins relate to measles, whooping-cough and scarlet fever, and contain specific directions to prevent the spread of these maladies.

Cornell Medical School Recipient of Endowment.

An anonymous gift of \$4,350,000 was recently made Cornell University Medical College. While the name of the donor was not given, it is generally supposed to be Colonel Oliver H. Payne, who has been most generous in his annual donations to the school.

Venereal Diseases Now Reportable in Iowa.

On January 1, 1914, the law became effective in Iowa for physicians to report all cases of venereal diseases coming under their care within twenty-four hours after discovery of same.

Precautions to Be Taken in New York Against Sale of Bichloride of Mercury.

Owing to the numerous cases of bichloride of mercury poisoning which have recently occurred, the Department of Health of New York City has made a law, effective March 1, 1914, that this drug "shall not be held, kept, sold or offered for sale at retail in the dry form except in colored tablets individually wrapped, the wrapper to have the word "Poison" in plain letters conspicuously placed, and dispensed in sealed containers of glass, conspicuously labeled with the word "Poison" in red letters."

State Hygienic Laboratory for West Virginia.

During the last session of the West Virginia Legislature a law was passed authorizing the establishment of a State Hygienic Laboratory, and it has been decided that it shall be installed at the State University at Morgantown.

A Leper in Boston.

Public Health Reports announces that a case of leprosy was notified in Boston, Mass., November 7, 1913, in a male Russian, aged 26 years, who had resided continuously in the United States for a period of seven years, and previously to that in Russia. The type of disease was tubercular.

The Fight Against Tuberculosis Gaining in Public Interest.

The last report of the National Association for the Study and Prevention of Tuberculosis shows that the fight against tuberculosis is receiving more and more support from public funds each year. Nearly seventy per cent. of the money spent in the treatment and prevention of tuberculosis during the past year was obtained from public funds, an increase of 15.8 per cent. since 1909. New York State spent more money than any other two States in tuberculosis work.

The Norfolk, Va., Department of Health

Reports a total of 143 deaths from all causes for November, 56 of these being white and 87 colored people. The population, officially estimated July 1, 1913, is 85,005.

Obituary Record

Dr. Henry Steir Pole,

Of Hot Springs, Va., died of heart failure at the home of his daughter in Lewisburg, W. Va.,

December 28. He was born in Baltimore, Md., in 1847, and had lived at Hot Springs and its vicinity since 1867. He received his degree of M. D. from the College of Physicians and Surgeons, Baltimore, in 1880, and had been a member of the Medical Society of Virginia since 1890. He was also identified with the American Medical Association. Dr. Pole was for a number of years resident physician at Hot Springs, and was one of the most prominent physicians and influential citizens in his section. For years he has been a recognized authority on the use of spring water in rheumatism and gout.

His widow and nine children survive him. Two of his sons, Drs. E. A. and Lanier Pole, are practicing physicians at Hot Springs.

Dr. William L. Broaddus,

One of the most prominent and beloved physicians of Caroline County, died at his home in Bowling Green, Va., January 4. He was born January 30, 1846, and as soon as he was old enough he left school to join the Confederate Army, and surrendered with Lee at Appomattox. In the fall of 1865 he resumed his studies, going first to the University of Virginia and later to the University of the City of New York, receiving his medical degree from the last named school in 1868. He located first in King and Queen County, Va., later moving to Bowling Green, where he had made his home for the past twenty-two years. He joined the Medical Society of Virginia in 1872, and was for several years a member of the Medical Examining Board of Virginia. His widow and several children survive him.

Dr. James M. Scott

Died at his home, Raccoon Ford, Va., December 28, after a brief illness. He was a native of Spotsylvania County, Va., and at one time resided in Fredericksburg. He was widely known and prominent as physician and citizen throughout his section. Dr. Scott graduated in medicine from the University of Virginia in 1878, and joined the Medical Society of Virginia in 1880. He was made an honorary member of the Society in 1906. His wife and four children survive him.

Dr. Frank S. Woolfolk,

Son of Judge J. H. Woolfolk, died at his home near Louisa, Va., January 3. He studied

medicine at the Washington University School of Medicine, Baltimore, from which he graduated in 1877, and identified himself with the Medical Society of Virginia in 1904. His widow and a son survive him.

Surgeon-General George H. Torney, U. S. A.,

After an illness of several weeks, died at his home in Washington, D. C., December 27, of bronchial pneumonia. He was born in Baltimore, Md., June 1, 1850, and studied medicine at the University of Virginia, from which he graduated in 1870. His first service was in the navy, 1871-1875. Immediately after his resignation from the navy he was appointed assistant surgeon in the U. S. Army, with the rank of first lieutenant, and was promoted rapidly, until he finally received the rank of surgeon-general of the army on June 14, 1909. He saw especially active service in the Philippines and Cuba. He was a member of the American Medical Association and various other associations and clubs.

At the request of his widow, West Point, N. Y., where General Torney had been stationed for four years, was selected as the place for the interment, and the burial was held with full military honors.

Dr. Silas Weir Mitchell,

Noted as neurologist, author and physician, died at his home in Philadelphia, January 4, as the result of an attack of grippe, the sickness being accentuated by his advanced age. He was born in Philadelphia, in February, 1829, and was the son of a physician. He commenced the study of medicine at the University of Pennsylvania, but, on account of illness, gave it up before completing the course, and later received his medical degree from Jefferson Medical College. In 1862, he became an army surgeon, and practically confined his work to the treatment of soldiers suffering from nervous disorders and wounds of the nerves. His literary works included a large number of books of fiction, fairy stories for children and scientific books and papers. He was the first to advocate the rest treatment for nervous disorders. Dr. Mitchell had received honorary degrees from a number of the leading colleges and universities, and was connected with many medical organizations. Two sons survive him.

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ACUTE RHEUMATIC ARTHRITIS AND ALLIED INFECTIOUS CONDITIONS.*

By J. GARNETT NELSON, M. A., M. D., Richmond, Va.

Quite a number of articles have appeared in the last few months or years dealing more or less definitely with subjects that might properly be discussed under the above title. In this paper I shall attempt, by boiling down previous records and observations and citing a few cases of my own, to frame a fairly concise classification that seems to me, at the present stage of our information at least acceptable. This classification may not be final, but I see no reason why it should not be so. Absolute positive proof may be wanting, but supporters of a negative proposition are fewer than they were, and seem to me in a more parlous state than myself and those who may agree with me. Science teaches us that we may not deny a thing simply because we cannot prove it, but on the contrary compels us to believe in the existence of matter whose chain of evidence is entirely broken. Ether, for example, is a "hypothetical medium of extreme tenuity and elasticity," etc. In spite of its being hypothetical no one can either deny its existence, or refute certain laws in regard to it. It exists and is universal, because it must be. Certain laws are true because they must be true, and that's all there is to it. In our own more restricted limits of science applied to disease, measles illustrates my point well and frequently. I dare say that all of us believe in its bacteriological etiology, whereas as a matter of fact we know no more about it than was known one hundred and fifty years ago.

So, then, for discussion and illustration of the subjects included under the title of this paper, I make the following classification:

1. Acute rheumatic, arthritis, occurring alone, or complicated, or followed by inflammations of serous and mucous membranes, tendon sheaths, aponeuroses, chorea, etc.
2. Acute rheumatic inflammations of the tonsils, serous and mucous membranes, chorea, etc., without arthritis.
3. Acute arthritis with a definite infected area in some other portion of the body, such as the tonsils, gall bladder, bowels, prostate, etc.

This last division belongs more properly under the head of chronic conditions, is not by any means a rheumatic arthritis, and may only be included here under the head of allied infectious conditions.

Of these three classes, the first is, perhaps, the most common and disastrous, although its excess in frequency over the second is undoubtedly due to the fact that we exclude the joints from our second class. Rheumatic arthritis is so common that its manifestations, complications and sequelae are familiar to almost everyone, as is the fact that this type of joint involvement not infrequently is itself not a primary condition but secondary to infection in some other portion of the body, particularly the tonsil. The chain of events presents the same pictures too often for anyone to deny a definite association. A case in point may be cited:

In March of the present year I was called to see a child of 13 years who was suffering from what appeared to be an ordinary follicular tonsillitis. Under treatment all local signs, ulcers and inflammations disappeared, but the child remained pale and listless and was not allowed to return to school. After being about until the

*Read before the forty-fourth annual meeting of the Medical Society of Virginia, at Lynchburg, October 21-24, 1913.

latter part of April, she developed a typical rheumatic arthritis, not very violent, and confined to the ankles. In due course of time all local signs disappeared here also, but the child's general condition was so unsatisfactory that I advised moving her to some warmer, dryer quarters. I did not see her again until June 22nd, when her mother brought her to my office suffering from a violent general chorea. This was so extensive that she walked with great difficulty, her speech was sputtering and explosive and she was as likely to blow her food through her nose or spit it out as she was to swallow it. There seemed to be scarcely a portion of her body that was not involved. She was put to bed, and gradually began to improve. She was watched carefully, the possibility of the endocardium or some other serous membrane giving trouble being always in mind. Early in July a soft mitral murmur with accelerated pulse and a slight rise in temperature appeared. After weeks of treatment with rest in bed she recovered. A careful examination made in the past ten days fails to show any after effects of the experience. We see, then, that this child had in the course of four months tonsillitis, arthritis, chorea and endocarditis. A number of similar cases have been reported. This one interests me especially, perhaps, because it is the only one with just this history that I have seen, and on account of the extent and great violence of the chorea.

Another case in point is that of Miss K., white, female, aged 28, occupation nurse. She came under my care in January, 1911, suffering from arthritis, involving chiefly the fingers and ankles, of a very obstinate nature. This inflammation was migratory and extremely painful. There was a distinct leucocytosis; her urine showed no signs of nephritis. She was treated with salicylic acid or its salts, and alkalies, but showed little benefit except that when heavily under their influence she suffered less pain. In February she developed endocarditis, a dry pericarditis, and a dry pleurisy. After weeks of treatment she improved sufficiently to travel and went to Florida. There she regained health and strength sufficiently to do light work, acting as companion to an old lady, but only for a brief period. When she returned to Richmond in May, the only joint involvement shown was soreness and slight swelling in her right wrist, but there was marked anaemia, and great weak-

ness. Her morning temperature, pulse and respiration were 98, 100, 24; the evening being 102, 136, 26. There was a systolic mitral murmur, and dilatation of the left ventricle to just below the 6th rib in the midclavicular line. During the next few days severe pains of about forty-eight hours duration came and went—chiefly in the lumbar region and about the left sacro-iliac joint. She then passed three very comfortable days and nights, but her fever continued. Four days later severe pains appeared in the left shoulder, precordium and lumbar region. About the middle of June there were delirium, great restlessness and general rigidity, suggesting meningitis. Two days later she passed about 36 hours with no fever and free from pain. About this time her urine showed signs of diffuse nephritis. This never cleared up and seemed finally to be the immediate cause of her death in the latter part of July. This case began as a rather limited arthritis, ran the gamut through various joints and membranes to a final violent diffuse nephritis. To me the most interesting feature is the recurrence of one or two days of almost normal temperature with total absence of subjective or objective evidence of disease, excepting the heart murmur and urinary findings.

As illustrative of the second class, I am selecting from my records two cases similar to the preceding in many respects, but differing in one essential, an almost total absence of any joint involvement. Both were nurses, both about thirty years of age:—The first, in the beginning rather subacute, later violently acute; the second, extremely severe almost from the beginning.

The first case came to me in January, 1910. While on duty she complained of having a severe pain in her right axilla. Her temperature, pulse and respiration were 103, 118 and 25. She was put to bed, and on examination a dry friction rub was found near the painful area. There was no evidence of fluid and in a few days all physical signs cleared up. At the initial examination a systolic mitral murmur was heard which the patient stated had been there for years. Two weeks later she was seized with severe abdominal pain and rigidity. After consultation it was decided to remove her appendix. This was done but the gross appearance of the appendix only showed trifling signs of trouble. Six days later she had another attack of pleurisy of three days

duration. An attempt was made to withdraw fluid in order to grow a culture, but the results were negative.

This case terminated fatally the following June.

The objective evidences of an infection following laws peculiar unto itself, or I might say, a peculiarly lawless infection, were several distinct attacks of short lived pleurisy, peritonitis, meningitis, gastritis, and typical rheumatic nodules. The attacks of meningitis were preceded by violent occipital headache and revealed by photophobia, delirium, rigidity, vomiting and hyperaesthesia. The nodules were typical, presenting over tendon sheaths, and on the scalp. They were extremely painful and tender, the pain, swelling and tenderness of each disappearing within four days.

The last days of this case were worse than the first, the suffering intense, the patient being apparently the victim of an attacking army, firing explosives at will into various portions of her economy.

The second case occurred during an epidemic of measles. Her first symptoms were confined to the tonsils and mucous membrane of the pharynx and upper air passages, leading, in view of the epidemic and appearance of the mucous membrane, to a diagnosis of measles, which was rejected later. There were no Koplik spots and no characteristic symptoms. As to the sites of pain, the following notes are interesting: January 22nd, severe pain at base of skull, and in calves of legs. January 24th, no pain in head, severe pain in lower extremities. January 25th, severe pain in neck and left ear, eye lids inflamed and sore, right knee swollen and painful. January 26th, morning report—very comfortable; evening report—severe pain in right breast, right ear and lumbar region. January 27th, right ear, neck, right hypochondrium—very painful. Abdomen very tender. For the next two days her symptoms were almost entirely abdominal, showing general rigidity and tenderness, with the right leg flexed. Noting the similarity of this case to the preceding, the appendix was not disturbed. January 29th, pain in abdomen somewhat relieved, coughing a great deal, spitting some blood, apparently from nose. January 30th, face flushed, very restless, pupils contracted, suggesting meningitis; headache. January 31st, pain in chest, respiration jerky, rate 26. February 1st, marked pain in

chest, respiration difficult. Severe pain in right ear. February 2nd, more comfortable. February 3rd, severe pain in precordium, pericardial friction sound, soft systolic mitral murmur. February 5th, pain in region of bladder. Micturition painful, tenesmus. February 7th—morning, no marked pain, resting well. Temperature 98; pulse 144, respiration 30. Evening; intense pain in cardiac region; temperature 99.4; pulse 160; respiration 40.

One week later violent occipital headache, delirium, nodule on forehead.

This patient died on February 17th, after an illness of less than four weeks. Until within 19 days of her death the urine was negative. At this time there was a diffuse nephritis. Her blood on January 30th showed the following: leucocytes 20,000, polynuclears 89.9, lymphocytes 6.3, large mononuclears 4: On February 8th, leucocytes 30,000, polynuclears 86, lymphocytes 7.5 large mononuclears 6.5 per cent.

The interesting points in this case are very similar to those in the later stages of the preceding. The pain was severe, but vagabond, lingering but a short while in any one place, returning, possibly, however, in a few days. The endocardium, pericardium and myocardium were involved, as well as the pleura, peritoneum and meninges. The termination was fatal. The blood count is significant. Note a leucocytosis of 30,000. Dr. Guy Hopkins confirmed my diagnosis of an infection with the streptococcus rheumaticus, basing his opinion on three points: The clinical history, the leucocytosis and especially the failure to grow a culture after repeated efforts. Early in this case and repeatedly, we attempted to get an autogenous vaccine, but with no results.

The third class, namely a joint involvement, simulating rheumatic arthritis, but showing after careful search an infected focus at some more or less remote portion of the body, has been reported upon with increasing frequency during the past two years, but with astonishing infrequency prior to this time. Of the three classes discussed, this is by far the most encouraging in regard to ultimate results. It must be confessed that patients belonging to either of the first two classes may respond to treatment poorly. Neither salicylic acid nor any other known method of treatment can be relied upon with any degree of certainty. One case behaves nicely; another apparently similar, after run-

ning a more or less prolonged course, better at one time, worse at another, terminates fatally. But patients belonging to the third class may be absolutely cured. Cripples may be made to take up their beds and walk.

For example, a nurse incapacitated by ankle involvement, is treated for eighteen months without benefit. As a sort of shot into the covey, her tonsils are removed. A pocket of pus is found behind one of them; her ankles clear up and give no further trouble. A cripple on crutches hobbles into the office of a nose and throat man complaining of nasal catarrh. Foul smelling pus is seen dripping from a sinus; under local treatment the infected sinus is cured and the crutches are discarded. "Then shall the lame man leap as an hart." And like "the mountains and the hills, break forth before you into singing and all the trees of the field shall clap their hands."

It was not my purpose to go into this division of my subject very fully. This is merely another reminder—another caution to us all to search diligently for an infected focus in every case of arthritis.

My brief and cursory reports make no mention of treatment in detail, on account of the paper scheduled in our program to follow mine, but without some allusion to etiology and pathology what value my paper has will be lost.

A number of true believers still hold to the theory of a chemical cause, nor can their case be thrown entirely out of court, nor could the statement that any one has discovered a specific responsible microorganism be made without argument. In Osler's "Modern Medicine," Dr. Fredk. J. Poynton quotes a Dr. Cheavles as follows: "The occasional epidemic prevalent, the variability of type, the incidence upon the young, the occurrence of tonsillitis, of endocarditis, of pneumonia, of erythematous eruptions, the rapid anaemia, the tendency to capillary hemorrhages, and albuminuria, the implications of the joints, the relapses, the occasional super-vention of hyperpyrexia, the nervous disturbance, the specific power of salicylic acid, are all suggestive of an infectious disease."

At any rate, it may be believed that a positive causative factor of tonsillitis, arthritis, endocarditis, pericarditis, chorea, etc., may be a distinct diplococcus having definite cultural characteristics and capable of producing similar lesions in rabbits and monkeys. These diplo-

cocci have been demonstrated in the endocardium, pericardium, pleura, peritoneum, pia mater and meninges in fatal chorea, synovial membranes, nodules, lungs, urine and blood. It is very important to note their presence in the pleura, inasmuch as the tubercle bacillus as the predominating specific cause of pleurisy seems to me to have been emphasized to such an extent that one might be led to believe it the only cause.

We must believe that at least so-called idiopathic pleurisy, occurring suddenly in previously healthy people, short lived and curable, may be due to this diplococcus. In Practical Medicine Series, 1913, volume VI, we find that in experimental rheumatism "the lesions of human clinical rheumatic infection were reproduced in essential details in rabbits by inoculating them with streptococci isolated from patients suffering from rheumatic infection. The formative reaction, which is so characteristic of rheumatism in man, is perfectly reproduced in the rabbit."

As regards chorea, it does not seem to have been proved that it is always due to the same cause as arthritis. But its frequent association is a matter of common knowledge. And we must be interested to note that cocci recovered from the cerebro-spinal fluid of fatal cases of chorea, when injected into rabbits, have been followed by remarkable twitching movements, poly-arthritis, endocarditis and pericarditis, with an inflammatory reaction practically identical with that found in the human being. In the *Journal of the American Medical Association*, volume 61, No. 15, p. 1376, there is a report of a streptococcus isolated from the throat of a patient with a case of chorea of five years duration. Similar organisms have been isolated from a number of cases of more acute chorea. The streptococcus as grown in blood-agar forms a heavy, dirty white growth, etc. A dog which was injected intra-venously with the growth from four agar-slants developed choreic movements within 12 hours.

The pathology of these short-lived vagabond reactions may be illustrated by selections from that portion of the article of Dr. Poynton referred to above, devoted to subcutaneous nodules. He states that there is "swelling of the connective tissue, dilatation of the blood capillaries, exudation and necrosis of the most damaged area." "Theses nodules are not, as they are so often termed, fibrous nodules, but inflammatory

exudations." "Nodules can be obtained in rabbits by injection of the diplococcus."

I have seen these nodules in only five cases. They were found over the frontal bone near the temporal ridge, and over the dorsal tendons of the feet and hands. All that I have seen were exquisitely tender; they appeared suddenly, between visits, and disappeared within four days. One day there would be one as large as an almond on the forehead, perhaps; two or three days later this would have disappeared and one or more were to be found on the hands or feet. It is believable that temporary involvement of the pleura, peritoneum, meninges, etc., is pathologically identical.

The following conclusions, by no means original, may be drawn from my own cases and from studying the reports of others:

1. There is an acute arthritis due to a definite coccus or strain of cocci.

2. These cocci have an affinity for serous membranes, mucous membranes, aponeuroses, tendon sheaths, etc.

3. The point of entrance may be the tonsil or nasal membrane.

4. Their activity in any one site is usually self-limited.

5. The direct cause of acute, and especially chronic, arthritis is frequently an infected focus more or less distant from the involved joint.

317 North Harrison Street.

THE TREATMENT OF RHEUMATIC INFECTIONS.*

By JAMES McCRAW TOMPKINS, M. D., Richmond, Va.
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Rheumatic infections occupy a very prominent position among the ordinary diseases, few of which have proved more difficult to define, and none have been more complicated by misleading theories.

In modern times the belief has steadily gained ground that rheumatism is a systemic infection, in which arthritis is important, but not primarily necessary. Thus, under true rheumatic manifestations are now included the various conditions of chorea, tonsillitis, carditis, thyroiditis, bursa inflammations, indurative headaches, some erythematous and purpuric conditions, and at times pleuritis and nephritis.

Today there is little doubt but that rheumatism and these allied rheumatic conditions are clearly and definitely due to bacterial infection.

In 35 cases of Poynton and Payne in 1900, a special diplococcus was isolated from the lesions, which experimentally produced rheumatic manifestations in animals; other authors claim other special cocci, but most authorities maintain that several different members of the micrococcal group may produce acute rheumatism or any rheumatic manifestation. They believe that this special diplococcus is simply an attenuated form of the streptococcus which may occur at times; in other cases, identical symptoms follow infection by other forms of the coccal group.

Much confusion in nomenclature has arisen in the case of subacute and chronic arthritis because of the marked differences in the clinical picture from acute rheumatism. These differences in nomenclature have no proper etiological or pathological basis, nor do the general principles of treatment differ.

Whether a case of rheumatic infection is due to actual joint infection or to arthro-toxic products disseminated from a local bacterial source at a distance, in every case it is of great therapeutic importance to search out any such possible infecting focus, for our therapeutic efforts will not be crowned by a permanent arrest of the disease, but rather we must expect reinfections and relapses unless such a primary atrium can be removed or purified.

The tonsils hold first place in therapeutic importance because they are accessible to radical treatment.

Next in importance is colonic infection. Colonic infection is suspected where no other definite focus can be discovered. It is a comparatively common source of infection. Treatment along this line is followed at times by striking results. Some authors claim that colonic constitute the majority, and go so far as to recommend radical excision of the colon in many cases. Other cases of rheumatic infection are associated etiologically with chronic infection of sinuses, appendix, gall-bladder, gums, seminal vesicles, bronchial infection, infection of the urinary tract or pelvic organs. The rational treatment then of all rheumatic infections, whether manifested as an acute or chronic arthritis, whether as tonsillitis, chorea, carditis, nephritis or other rheumatic phenomenon, depends (1) on remov-

*Read before the forty-fourth annual meeting of the Medical Society of Virginia, at Lynchburg, October 21-24, 1913.

ing if possible the source of infection; (2) methods of combating infection; (3) the elimination of toxic products; (4) symptomatic treatment; (5) overcoming orthopedically the late results of infection.

(1). The first step is to carefully go over the patient with a view to finding any definite source of infection, as tonsils, etc. If no definite focus can be found, then adopt colonic treatment as a routine: this is especially useful for chronic or subacute cases. The next step is to remove any source of infection, employing in appropriate cases tonsillectomy, drainage of sinuses or cleansing of the colon by copious irrigations combined with daily purgation, a non-putrefactive diet, and the administration of lactic acid bacilli. At other times appendectomy or cholecystotomy may be indicated: good dental work or bronchial and urinary disinfectants may be needed. Great conservatism must be practiced here, and unless definite relationship is apparently present, we must go slowly in radical treatment.

(2). When the source of re-invasion has been finally removed, the alexin substances of the body are usually able to combat successfully any existing infection, but there are certain cases where by reason of a too long fight against constant reinfections, the opsonic index may have been depressed below an effective point. The opsonin increase should be stimulated by the use of suspensions of dead micrococci, preferably identical with the infecting agent or agents. By careful inoculation during the positive phase, the patient's index will be repeatedly and continuously raised to a sustained high degree of immunity. Thus the body organism may be trained to successfully overcome the invading bacterial forces. The treatment is ideally carried out where the true agent can be isolated from the blood stream, from joint puncture, or from a definite source, such as tonsil or sinus.

If the identical agent is not available, we can then employ stock preparations, but must not expect the results to compare in any favorable way to those obtained by the use of the identical preparation, as represented by autogenous bacterin. Stock bacterins have been produced on account of the success with autogenous bacterins.

Theoretically, phylacogens are also open to criticism. Reporting from the *Journal of the A. M. A.*, they are defined as "sterile aqueous substances from bacteria grown in an artificial

media." The *Journal* claims that "constant or accurate dosage is not possible because of the variability in activity of different strains of the same bacteria, when grown in artificial media, and that they have toxic properties."—(Ed. *Jour. A. M. A.*, Feb. 1, 1913).

Theoretically, autogenous vaccines are the ideal agents in bacterial therapy. By their use antibodies of precise specificity are aroused, and in theory they provoke the formation of exactly that class of immunizing substances best suited to destroy the specific pathogenic bacterium and to nullify toxins. These theoretical assumptions of autogenous superiority have been well sustained clinically and experimentally. It is still very common not to obtain results even with this best means, but therapeutic results otherwise unobtainable may sometimes be secured in this way.

In acute rheumatic infections, as in other acute infectious diseases, bacterin treatment would seem to be prohibited. There is need of more careful experiments and clinical study of bacterial treatment in acute cases. The danger of overturning the delicate balance by imposing the negative phase at a critical juncture would seem very great.

Aside from a specific raising of immunity, general measures such as fresh air, change of climate, nourishing food, hematics, such as iron and arsenic, are useful by increasing general body resistance and immunity. Thyroid and thymus therapy in certain chronic cases seem also to exert a certain favorable effect in protecting the body from effects of irritating toxins. It is well known that the thyroid specifically responds to micrococcal infection and probably furnishes immunizing bodies. In an indirect way by stimulating thyroid secretion iodine and iodides are useful. Salicylates and hexamethylenamine are probably eliminating in the joint cavities and have certain local and general bacteriacidal effects.

(3). Elimination of toxic products is best obtained by mild purgatives, warm baths, diuretics such as the alkaline citrate of potash, or the well-known cream of tartar, large amounts of water taken internally, and in severe acute cases by rectal instillation. Salicylates improve elimination by skin and kidney.

(4). Symptomatic treatment includes salicylates, coal tar products and opiates for pain where necessary, general rest in bed, and rest of

the acutely inflamed joint by mechanical splints, local application of heat, dry radiant heat from the therapeutic lamp, and local applications such as oil of wintergreen: in subacute and chronic cases, passive and active hyperemia, massage and stimulation with the electric spark.

(5). After the infection has been successfully combated, in chronic cases certain orthopedic measures may be necessary to restore function.

Prophylactic measures are also important. As youth is the age of greatest susceptibility, hundreds of young people are more or less incapacitated annually. Prophylaxis is best obtained by watching for early signs in children, by carefully examining the avenues of infection, and by giving relief where needed. Dampness and ventilation of houses, the nourishment and clothing in young people should receive careful attention.

The very character of this disease makes it difficult to arrive at definite conclusions as to the value of any method of treatment. Chronic cases would certainly seem to afford the best test, as acute cases have a decided tendency to spontaneous cure.

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116 East Franklin Street.

A CASE OF EMBOLISM OF A BRANCH OF THE RETINAL ARTERY.

By J. HERBERT CLAIBORNE, M. D., New York, N. Y.

In the issue of September 26, 1913, *Virginia Medical Semi-Monthly*, I published a case of central ring scotoma which disappeared under treatment after several months. The following case represents a kind of central scotoma, which is almost invariably permanent, but in a few cases has disappeared by re-establishment of anastomatic circulation between the choroidal and retinal vessels.

Scotomata that are central naturally disturb central vision—that is to say, they interfere more or less with reading or any other act which requires acute central vision; nevertheless the peripheric vision in these cases remains, and such patients are capable of getting about and performing any function which does not require acute perception. If the scotomata occur on both sides and are sufficiently large to include the maculae lutea, the patient is badly handicapped and might as well be blind so far as central vision is concerned. I have had several patients in my life with this condition who were unable to earn their livelihood because, owing to the lack of central vision, they could not fulfill the duties consistent with their position in life; such people are sometimes objects of charity and their economic value to the State is almost that of a blind person. Fortunately, however, in the majority of cases, central scotomata are restricted to one side; when this occurs, a certain amount of disturbance is necessarily caused in central vision, but some individuals are able to ignore the scotomata by reason of the vision of the opposite eye while others are unable to do so.

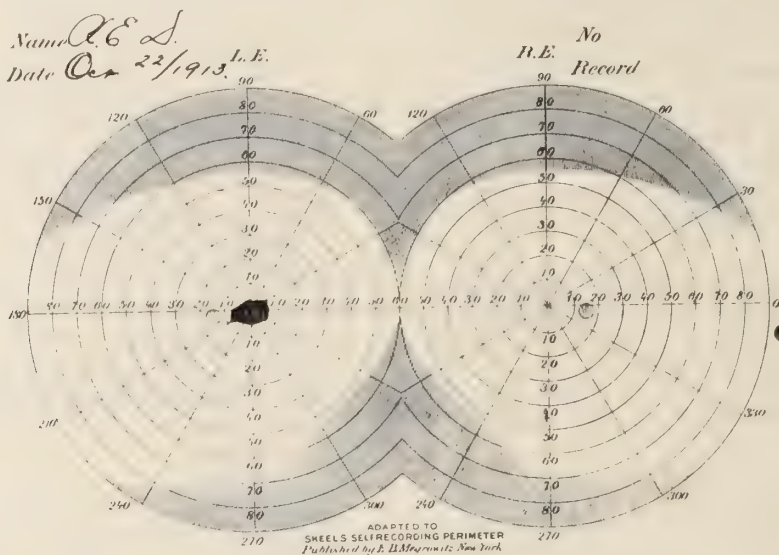
The following case illustrates a one-sided central scotomata, which the patient is able to ignore, though he is a professional and literary man and uses his eyes constantly:

On March 2, 1911, a gentleman of medium height, age 68, high strung, nervous, but healthy, and of abstemious habits, felt a large blur, almost totally obscuring his vision, suddenly come over his left eye while he was going down stairs in the morning after breakfast. He had gone to bed early the night before, and had not been guilty of excess of any description, nor any unusual muscular actions antecedent to the event, neither had he strained at stool before its occurrence.

The blur became better during the day, but later on got worse. I saw him on the morning of the day on which it happened and observed the following condition: left pupil slightly larger than the right, but reacts normally, directly, consensually and in accommodation; tension normal, media clear; optic nerve quite red slightly blurred above; the lower central vein as it plunges into the nerve head is constricted; upper vein enlarged and almost lost to sight in a slight cloud just above the disk; just above the upper edge of the nerve a branch of the upper

vein as it runs towards the macular is much narrower where it crosses an artery; the veins in general appear to be rather full and dark; right vision 23/30; left vision 23/200 plus, eccentric fixation; heart sounds normal, but action slightly rapid; kidneys found to be normal; field of vision taken at this time showed a perfectly black scotoma in the center, about four times the size of the field herewith shown; chart for field at this examination unfortunately was lost.

in the superior temporal artery which rises from the superior main artery; it is sharply constricted along the disk up to about its edge, but resumes its ordinary calibre and color just after passing the edge of the disk, and finally becomes thin and pale throughout the rest of its course towards the macula; inferior temporal arteries likewise thin; blood pressure 185, pulse 90 to 100, patient somewhat excited by taking of blood pressure and pulse; field done on this



March 8, 1911, patient seen again; veins much in the same condition, but a small artery which runs towards the macula is much constricted and very faint; blind spot in field corresponds practically to that portion of the retina supplied by the artery. It was explained to him that he evidently had a stoppage of a small artery which feeds the nerve fibres supplying the central vision. He was restrained from reading and advised to look after his general health, particularly his bowels; to cut off tobacco and coffee; no other treatment was given. He telephoned me from time to time, stating that he was getting better.

June 26, 1911, three and a half months afterwards; pupil about the same size and reacts normally; tension normal; cloud disappeared from around the optic nerve; nerve head a trifle pale; veins much smaller; condition of constricted artery about the same; R. E. V. 23/30; L. E. V. 23/200 plus; field not taken.

November 26, 1912, disk still whiter; veins about normal; artery mentioned above in about the same condition; slight change noticed now

date shows a decided diminution in size of scotoma.

October 22, 1913, two years and seven months after the first observation; about the same condition in fundus as at last observation; absolute central scotoma as shown by chart, somewhat irregular in form and about one-fourth the size of the original. Patient in excellent condition, has never resumed the use of tobacco or coffee; is undisturbed in reading or any other act by the existence of the blind spot. When, however, his right eye is covered, he is only able to see the 200 foot letter, with imperfect perception of the 100 foot line, while he fixes the letters centrally. He is unable to read with the affected eye alone.

If one looks into the eye with an ophthalmoscope, he will note that the arteries and veins as they branch towards the macula region halt just before they reach it, and that a certain area just there is entirely free of blood vessels; these, however, are the obvious branches of the artery and veins. The inter-lacing capillary network, which is not visible to the naked eye, approaches

more closely to the fovea, and yet it also stops short of it.

The fact that the capillary net-work is lacking at the point of acute vision has long since been established, Leber, Becker, Gurlach, Reuse, Ayres, and Mayerhausen agree that the fovea is devoid of retinal blood vessels, while the remaining part of the macular region is richly supplied. Mayerhausen estimates the square area of the macula at 2,356 m.m., of which 2,205 are very vascular, while the difference between these figures represents the non-vascular tract. According to the same observer, the vessels of the macular region terminate about .137 m.m. from the edge of the fovea.

In view of these things, it is not unreasonable that embolic clogging of circulation of the vessel feeding this area, however small the embolism, may produce a scotoma entirely involving the macula region, including the fovea. The fact that this patient can see the top letter of the card in looking at it, and can see none of the other letters below would tend to show that the upper region rather than the lower portion of the macula is effected. This would be consistent with the observation of the constricted blood vessel.

A diagnosis of embolism of the retinal central artery, partial or complete, may be made by the ophthalmoscope alone; but sometimes it is difficult to do, owing to uncertainty in picking out the exact blood vessel obstructed. The field and the history of the case should always be taken into consideration and are important factors in fixing the diagnosis.

The great congestion of the veins in this case, which was observed on the first examination, led me to the view that the process was a venous one, probably a thrombosis at the nerve head, but the subsequent developments, the central scotoma, and the constriction of all three temporal arteries, more particularly the superior temporal one, shows that it was a case of embolism of the latter artery—in short, a partial embolism. Moreover, I have noted in cases of thrombosis that the obscuring of vision does not come on as suddenly as in embolism, and in the nature of things this should be so. I have noticed likewise in embolism, both partial and complete, that there is frequently a great enlargement of the veins, particularly in complete embolism. It is not improbable that some portion of the embolus as it passed into the retina at the porous

opticus stopped there and impeded the outflow of the venous blood, thus producing distended veins. The distention of the veins strikes one's attention naturally more than a slightly constricted artery; hence, the idea one may get at the first blush that the process is a venous one. It is interesting to note that the size of the scotoma is very much less than it was at the beginning, but it is nevertheless large enough to interfere with distant central vision and to prevent him from reading with that eye, though the peripheric field is and has been constantly normal.

Exact diagnoses in the back ground of the eye are difficult to make owing to its limited area and the intimate connection between the elements of which it is composed; hence all factors should be considered and each be given its true value.

11 East Forty-Eighth Street.

THE ROENTGEN-RAY AS AN ADJUVANT IN THE TREATMENT OF MAMMARY CARCINOMA.*

By JAMES W. HUNTER, JR., M. A., M. D., Norfolk, Va.

The increase of cancer in its various types is quite a sufficient excuse for presenting a paper upon the treatment of a certain phase. I refer to that involving the breasts. And, while it is not my intention to discuss in any way the technique of the surgical removal, it is my desire to call your attention to a method, which, when used in conjunction with this treatment, should greatly increase the proportion of cures. For, until we know the cause of carcinoma, we can not hope for a rational treatment, and it must be confessed, to quote a prominent surgeon, that even with the added amount of removal or improved technique, it is very doubtful if our statistics have been improved.

There are, however, certain things that we do know, and it is upon these that any logical treatment must be placed: First, there is a pre-cancerous stage; second, cancer is primarily a definite and local cell growth; third, it differs widely in its nature and progress according to the embryonic layer from which it arises; fourth, while, as a general rule, it may not be transplanted from one individual to another, it will take root if inoculated into another part

*Read before the forty-fourth annual meeting of the Medical Society of Virginia, at Lynchburg, October 21-24, 1913.

of the affected individual; fifth, a tendency, whatever the treatment, to recur. Hence, the conclusion that the only treatment for cancer is its early and complete removal.

While this is true in a certain sense, we must ask ourselves if the treatment of carcinoma shall be limited to surgical procedures. Unless the operation be of a wide and radical nature, it were far better not to operate. We merely expose a lymph circulation to aid in a sure and early recurrence. There thus arises a feeling that all or everything offering any hope should not be left untried. With fulguration, radium, thorium, etc., I have had no experience; with the Roentgen-ray, however, I have, and it is my present intention to discuss briefly this treatment as an adjuvant in the attempted cure of mammary carcinoma.

A case referred to me nearly two years ago by Dr. R. L. Payne, Jr., of Norfolk, was briefly as follows: Mrs. F., a widow, aged thirty-seven, was operated upon for a carcinoma of the left breast, Dr. Payne doing the completed operation. Within three months a recurrence necessitated a second operation, after which the case was turned over to me. Under the Roentgen-ray the response was instant, small lumps and congestion melting away. Yet the treatment has had to be continued. A decided tendency to a recurrence in the form of a sort of pill-formation to be felt as one's hand is drawn over the skin, as well as an enlargement of the axillary glands, has had to be controlled by a constant and repeated use of the ray. At present the patient remains well, though the Roentgen-ray treatment will have to be continued.

Two other cases, also referred to me by Dr. Payne, might be cited. Mrs. B., aged forty-three, was operated upon for a carcinoma of the left breast in November, 1912. Since that time the Roentgen-ray has been constantly applied, at first once a month, lately every six weeks. While there has been no recurrence within the area of the operation, some small lumps have arisen supraclavicular. These, in turn, have almost disappeared, so that at the present writing two very small nodules supraclavicular and a very slight lump, over which the skin freely moves, near the course of the old drainage tube, are all that remain. Otherwise, the patient is well.

Mrs. H., aged about sixty, was operated upon in Buffalo about three years ago, a partial re-

moval of the left breast having been done. Another lump appearing two years later, Dr. Payne was consulted in February last. As the lump did not appear malignant, another partial removal was attempted. When healing had taken place, the case was referred to me. There was at that time a considerable swelling and induration of the affected breast. The Roentgen-ray was at once applied and has been continued once a month ever since, with the result that the breast has shrunk to a normal size, no glands are to be felt and the patient remains well.

While it has been my misfortune to have failures as well as my surgical friends, it is my experience, as shown above, that the application of the Roentgen-ray is of a distinct and definite value. It is my belief that every patient subjected to the operation of the removal of the breast for carcinoma or other malignancy should be treated at regular intervals for at least one year—and, if possible, for two years—afterward. By this means only can we hope entirely to obliterate any malignant or wandering cells. Of course, one asks: What of the method of fulguration? Personally, I can see but little decided advantage, as the denuded area must be treated at the time of the operation and, if the skin flaps are also treated, we may look for a slough of a very large area. Yet, if the surgeon wishes it, no practical objection can be raised. While, on the other hand, there have been many cures of carcinoma of the breast by removal alone, no subsequent treatment by the Roentgen-ray having been attempted, it must be confessed that the surgeon has run a grave risk and that everything has not been done for his patient.

A word or two in regard to the technique: First, the apparatus must be a powerful one, either a transformer or coil being employed. Personally, I prefer the coil and so far as I can observe, this is the opinion of those most competent to express themselves. Second, the patient should be treated as soon as possible, though here some difference of opinion is manifest, many claiming that the irradiation should immediately follow the operation. Others prefer to wait. To my own mind the period of election is just after the skin has healed or about ten days after the operation. We now run no danger of a chronic ulcer, though, theoretically, if the dosage were accurately gauged, no delay would occur in the healing. How-

ever, after healing has taken place, the skin has, in a measure, had a chance to recover from the effect of the antiseptics used, and this seems to me to be the logical time.

It is also my own opinion that some modification of the fractional method of treatment, as instituted originally by Skiff and Freund, is by far the best. Personally, I like to give about one Holz knecht unit at the first sitting and two others at intervals during the first week; then I wait a week and give the fourth treatment. My reason for recommending this, is the fact that the skin has been exposed to so much insult in the form of strong antiseptics and manipulation, that its normal tone has been lost and one would take grave chances in applying a full epilating dose. After a month the treatment should be repeated and continued for at least one year, and, if possible, two years. But now, as the skin has assumed its normal tone, it remains with the operator whether he will apply the full epilating dosage of four Holz knecht units or the usual one of about one and a half units. There is a growing feeling that, whenever one can do so, a carefully regulated massive dose of the Roentgen-ray is preferable to the fractional method; also, that for practical purposes, the Sabaraud roentgenochronometer is to be relied upon. In the new instrument of Hampson, four divisions are made in the scale between the unused A-tint of Sabaraud and his B-tint of the epilating dose. In this instrument the original subdivisions of Holz knecht have been retained and the Roentgen-ray thus made capable of accurate dosage.

Of the various types of filters, whether it is best to use them or not, of new and hardened tubes, etc., it is needless at this time to speak. These are technical matters to be decided by the operator for each and every case. Like the accurate measurement of dosage, as referred to above, it will command all of the skill and nice judgment of which he is capable. Suffice it to say that the apparatus must be a powerful one and that the rays must be applied in a sufficient dosage to do their work.

If you will pardon a digression, I was once told by a fellow physician possessing a small coil, of the excellent result (and nice fee), that he had obtained in a small case of rodent ulcer upon the face, some hundred and thirty applications having been made. From what I know of his technique, I am certain that, time for

time, from eight to twelve treatments of my own apparatus would have been quite sufficient. If this be true of a superficial lesion, how much more true of one involving lymphatic and other subcutaneous tissues!

It is manifestly impossible to give statistics of the cures by the application of the Roentgen-ray after the surgical removal of the breast as compared with those cases treated only by the latter means. The nature of carcinoma is such that some cases are permanently cured by a simple breast removal, while others, though apparently quite trivial, will recur in spite of all precautions. It is, however, my firm belief that if the measures outlined above, namely, an early and complete removal of the breast, followed by powerful and carefully regulated doses of the Roentgen-ray at regular intervals, are carried out, we shall have, as a result, a most decided increase in the number of cures of this condition. The usual mortality of sixty per cent. or over, due to the recurrence of the disease, can be and should be materially reduced. Yet I have been more than surprised at the seeming indifference of patience. We must educate them to their danger. Then and then only, by careful and repeated observation, can we hope for the greatest good.

In an article* by Dr. Russell H. Boggs, of Pittsburg, entitled "A Plea for a More Conservative Treatment of Malignant Growths," Dr. Murphy is quoted as follows: "An analysis of that class of cases (cancer), disheartened me very much, and an analysis of the more extensive operations done in various portions of the body later has added to my discomfort, and has made the cancer field rather a hopeless proposition to me. I think we can honestly say that we have not improved our cancer results in the last quarter of a century."

*American Quarterly of Roentgenology, June, 1913.

THE USE OF SALVARSAN IN NERVE SYPHILIS.*

By J. ALLISON HODGES, M. D., Richmond, Va.
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In the two previous clinics, nine different cases have been exhibited, each presenting some lesion of the nervous system due to syphilis.

To-day will be discussed the treatment of this class of cases, and especially the use of salvarsan.

*Clinical lecture delivered in the Memorial Hospital Amphitheatre, November 1, 1913.

The comparative merits of salvarsan or neo-salvarsan will not be argued, neither will the method of their administration be outlined, for the use, or method of use of either agent is rather a matter of choice than of results.

In a later lecture, it is hoped that the clinical results of this remedy in cases you have personally seen may be demonstrated to you.

Your attention has already been called to the importance of an early diagnosis of syphilitic nervous diseases, for in the early stages they are usually amenable to appropriate treatment, and are of good prognosis, but unrecognized or improperly or inefficiently managed, they are beyond the reach of our therapeutic efforts, because of the permanent sclerotic changes which develop.

It is estimated that at least ten per cent. of all the diseases of the nervous system are due directly or remotely to syphilis, and consequently the necessity for its early diagnosis is most apparent, and the urgency for its early treatment most imperative.

In order, however, to discuss intelligently the therapeutic efficiency of salvarsan and estimate its effects upon the nervous system, some facts as well as some fallacies relating to syphilitic nervous disease must be considered:

First,—In view of recent investigations, it is important to admit that involvement of the nervous system is not necessarily a late manifestation of syphilis, and that such organic diseases as encephalitis, myelitis, cerebral and spinal endarteritis, may occur during the first months of syphilitic infection, while tabes and general paresis may and often do evince initial symptoms within from three to five years after the date of infection.

The acceptance of this view-point of the manifestations of syphilis, confirmed now by reliable tests of the blood and cerebro-spinal fluid, as well as by the demonstrations of Noguchi and Moore, that the spirochaeta pallida is in the lesion of general paresis, uncovers our eyes, and the scientific physician must recognize that he must now no longer obscure his mental vision by looking for, or expecting certain special manifestations only in certain stages as due to certain toxins, nor stultify his efforts for successful treatment by administering, as by set rule, mercury in the second stage and mercury and potassium iodide, the routine "combined treatment," in the third, and possibly giving no an-

tisymphilitic at all for the so-called para- or meta-syphilitic cases.

Second,—It is likewise important to discard the theory that has been generally prevalent that syphilitic infection has its point of entrance only in the characteristic Hunterian chancre, and that the site of inoculation must present a typical ulceration.

The non-recognition of this fact has often delayed the use of a proper spirochaetacide, and fostered the consequent development of serious organic nerve disease.

Third,—It is of importance, further, to condemn the old Fabian policy of giving no treatment in the florid stage after the primary inoculation till there are clinical evidences of systemic infection.

This is a pernicious doctrine, for it is just at this time, a variable period, it is admitted, that the lymph-spaces and channels of the nervous system are invaded by the parasite, and the very time they should be destroyed, while the combative powers and the vital resistance of the protective tissues of the body are sufficient to powerfully aid toward this end.

Because the enemy flies no flag in its advance is no reason or excuse for our waiting in supine idleness for his insidious attack.

Fourth,—It must be acknowledged, also, that the Wassermann reaction of the serum of the blood is not positive in individuals actually affected with syphilis until a variable period after the infection, ranging from days to weeks in different cases, and the fact that there may be during this period neither clinical nor serologic detectable evidence of infection in these cases, does not prove that it does not exist.

Furthermore, there are apparently special storehouses in certain internal organs which seem to harbor the parasites, as if by preference, and unless liberated by the use of a spirochaetacide or by potassium iodide, they may escape detection and destruction.

Fifth,—It would be interesting in the discussion of this subject to know likewise the proportion of syphilitics who develop nervous diseases, but it is impossible to estimate this definitely or convincingly.

It is well to remember, however, that the problem of syphilis and its treatment will never be comprehended nor appreciated until it is recognized that it affects all the organs and tissues of the body, and that it alone is the cause

of the majority of organic nervous diseases, as well as of many functional ones, such as some forms of neurasthenia, headache and other depressive psychoses.

Sixth.—It is but fair to state that the life-history of the organism causing syphilis is as yet but little known, and it may yet be shown that there are different strains or varieties, some having a pre-direction for different tissues and lymph spaces of the nervous system, while others have a kind of chemotaxis for the skin and vascular system.

Only some such theory can account for the fact that most cases which suffer most severely in the nervous system have often manifested the least marked symptoms so far as the initial manifestations were concerned; for, in other words, what are frequently termed "the mild cases" are often the worst, judging by the serious organic nerve disease frequently seen by the neurologist at a later period.

In consideration, then, of these and other facts that might be adduced, it is evident that syphilis is syphilis, either in its early or late stages, and that its proper treatment is not only a difficult, but a responsible task.

The prime object of all methods of treatment is to sterilize the system of parasites, and in the past the orthodox system of using mercury and the iodides, singly and in combination, was believed to be the most efficient remedy for this purpose.

Their administration, however, was fraught with many drawbacks and difficulties, and the process was as tedious as it was often unsatisfactory. Consequently, with the introduction of salvarsan and its vaunted potentialities, the profession was as quick to test its merits, as scores of patients were eager to follow another new and dazzling fad.

Three years have now passed, and while it is yet too early to correctly judge of its therapeutic efficiency, still enough has been learned to know that it is far from a "cure-all" in syphilis, especially of the nervous system.

Its most brilliant results have been in causing the disappearance of the symptoms of this disease in the early or efflorescent stage when the mucous membranes were principally the point of attack, but its effects on other and later manifestations are still, in many cases, a *quæstio vexata*.

If, as we now believe, syphilis is due to

a definite parasite, then it is clear that it is manifestly our duty to employ such a parasiticide as will sterilize fully the whole system, but the point is whether we actually have such an agent, even in salvarsan.

If we have, it is evident that the dose must be in proportion to the advance of the disease, and the amount of the drug or the number of the doses must be increased in proportion to the multiplicity of the parasites, since naturally a definite number of parasites are destroyed by a definite dose of the remedy.

This logically argues for the earliest possible treatment of the disease, for it is far more possible to stamp it out then, and there is no possibility of producing death, as in the later stages, by the generation of endotoxins.

With the later manifestations of syphilis of the nervous system, however, salvarsan meets a more formidable antagonist and one entrenched in more impregnable defenses.

As a spirochaetacide, salvarsan has not only a direct destructive action, but also an indirect one in that it fixes the remedy and excites the organisms to the formation of specific anti-substances.

But it has been discovered that all parasites escaping the destructive action of salvarsan may also escape or withstand the bactericidal influence of the antibody and change it into a new variety which is serum proof and known as a relapsing group, and, further, it has been learned that the continual formation of relapsing groups can bring about a change in the chemo-receptors of the parasites and result in becoming less sensitive to the action of the drug than the original stock.

Again, the cerebro-spinal fluid is almost entirely free from cells and albumin, and this makes it almost impossible to destroy parasites in it, for drugs with the more complex molecules are, like albumin, kept out of it.

Another reason for the deficient sterilization of the system by salvarsan is that among the large number of parasites, there may be some unaffected by certain drugs, and while this may not be an important factor in the course of a fresh infection, still it is of importance in connection with diseases characterized by innumerable relapsing groups, such as syphilis, and this fact explains the utility of the combination of mercury with salvarsan, especially in cerebro-spinal syphilis, or any manifestation of syphilis

of the nervous system, for the bactericidal action of salvarsan can be greatly facilitated by the use of mercury.

Finally, certain constitutional diseases, such as status lymphaticus and Addison's disease cause a lowered resistive power in the patient which sometimes renders the use of salvarsan dangerous, but probably the gravest danger to be apprehended is in those cases where the location of the disease, as in brain affections, is such as to bring about a decided local reaction when the rapid disintegration of a focus of parasites liberates toxins, which by inflammatory action may be serious to life. Hence, a consideration of these facts makes it imperative that all such cases should be thoroughly investigated, and if necessary that potassium iodide be given in advance of salvarsan, so as to liberate these foci of infection.

If, in addition to these facts, we consider the accidents, so to speak, which may occur in the administration of salvarsan, such as the addition of too large an amount of alkali which injures the veins, or too small an amount, which causes blood coagulation and leads to thrombosis, or the too prolonged shaking of the solution, or too lengthy exposure to the air, producing oxide of arsenic, which is exceedingly toxic, or the use of slightly acid solutions, which are dangerous, it can be readily seen that great care must be exercised, for it is my belief, as it is of others, such as Panski and Collins, that most of the supposed idiosyncrasies of patients to this drug, are really the result of imperfections in its preparation or administration.

With proper preparation of the patient, and careful technic in administration, just as careful as for a surgical operation, the danger of salvarsan is a minimum one so far as my experience teaches.

The most important contraindications are acute and advanced nephritis, and advanced arteriosclerosis. Alcoholic debilitated subjects, as well as those suffering from cirrhosis of the liver are also dangerous subjects for the employment of this drug, and the presence of casts or sugar should deter us from its use.

It is a mooted question as to its use in those cases showing signs of syphilitic involvement of the central nervous system, such as meningitis, spinal irritative symptoms, psychoses or optic neuritis, but in my experience, small doses at the beginning of treatment and due caution in

technic override these presumed contra-indications, and, personally, I have seen no ill effects, except twice the production of a moderate cardiac oppression and dyspnoea, and once a temporary implication of the auditory nerve.

I am aware, however, that competent authorities have reported some serious accidents from the use of this drug, and it only enforces the truth that we ought to admit, that we are dealing with a poison of high potentiality, and should have proper respect for it. There have been reported so far, however, only 150 deaths in slightly over a million treatments.

The recent contention that the frequency of recurrent symptoms of nervous implication has markedly increased since the introduction of salvarsan has not so far been warranted by my experience, for I have found salvarsan useful in combating such symptoms as were previously present, and that the more frequently I gave the drug to certain syphilitic patients with nervous disease, the less the tendency to neuro-recurrences.

It is but proper to state, however, that the majority of the cases treated by me for syphilitic nerve disease had not previously been subjected to salvarsan administration.

Convulsions are scarcely ever produced by salvarsan injections, and an existing nervous lesion independent of syphilis, such as epilepsy, is not affected one way or the other.

Speaking generally, the therapeutic efficiency of salvarsan in syphilitic nervous diseases is not yet absolutely known, but far better results have followed the use of salvarsan alone than of mercury alone, and in syphilitic affections of the central nervous system when the signs are localized to one or two cerebral nerves, the combined use of salvarsan and mercury have given the best results. When the process is more diffuse, the method of beginning treatment with mercury, and later on giving salvarsan in gradually increasing doses when tolerance is established is preferable, and in my experience most beneficial. Some cases of tabes in my records have been improved, but though apparently arrested, the abolition of the knee jerks did not disappear, except in one case in which it disappeared in one day.

Salvarsan has not yet replaced mercury, and probably never will, and in the light of present experience, it is more reasonable to suppose that the two agencies will be used side by side,

one often supplementary to the other, and both in small and frequent dosage.

It has certainly been conclusively proved that one or two doses of salvarsan does not cure syphilis, and that to be effective, it must be used, supplemented by mercury, until the evidences of syphilis in both the serum and cerebrospinal fluid disappear, even if it has to be injected a number of times. It is as yet impossible to judge, previous to its administration, just what chronic cases will be benefited, and efforts have been made by using certain chemicals, to introduce more of the therapeutic agent into the cerebrospinal fluid, but these have not been successful. Neither have the direct injections of salvarsan into the cerebro-spinal fluid itself been satisfactory or successful.

The plan devised by Drs. Swift and Ellis, of the Rockefeller Institute, in those cases where the spinal fluid is infected, as shown by the cell count, globulin determination, and Wassermann reaction, seems more reasonable and ought to be more efficient. Their method is to give salvarsan every two weeks, and shortly after each administration, to draw off a certain quantity of blood from the patient, and inject considerable quantities of the serum, obtained from this, into the spinal canal.

It is evident, then, that no definite method has yet been evolved for the treatment of syphilitic nervous diseases, and that the future alone must determine this.

It is important, however, to remember that any form of treatment employed must be guided absolutely by the reactions obtained, not from the serum alone, but from the cerebro-spinal fluid also, for frequently the blood reaction may be negative and the spinal fluid reaction positive in the same case, and this has been notably exemplified in two of my recent cases.

Again, some of these cases are as genuinely serum-proof, as some of our malarial cases are "quinine-proof," and the escape of even one parasite may be the nidus of recurring relapsing crops.

And as still further adding to the mystery surrounding this form of infection, it must be admitted that some patients appear to enjoy a certain immunity to the ravages of the spirochetes, while still others have the apparent ability to purge their systems, automatically, of the invading infection.

The above facts call, consequently, for the

use on our part of not only salvarsan, but of mercury as an adjunct, and while the precise method of administration has not yet been discovered, still progress has been made, and the future of the treatment of cases of syphilitic nervous disease is brightening for the patient as well as for the physician.

As I said in the beginning, I will at another time discuss individual results in the specific cases which you have personally seen treated in this clinic by this method.

REPORTS OF SOME UNUSUAL GENITO-URINARY CASES.*

By THOS. V. WILLIAMSON, M. D., Norfolk, Va.
Genito-Urinary Surgeon to Protestant Hospital.

At the request of President Leigh, I beg permission to present to you some rather unusual and interesting cases which have fallen under my personal observation in the field of genito-urinary practise during the past eighteen months. These cases are selected on account of their apparent rarity, and I trust that they possess enough of this element to appeal to you.

Case 1.—A displaced and twisted bladder brought about by pressure of a mass of inflammatory tissue formed around a diseased appendix.

In June, Mr. R. was sent to me for cystoscopic examination. He had been troubled for some weeks with appendicitis, but had delayed seeking medical advice until his condition had become critical. Shortly before I was called into consultation, very marked and distressing urinary symptoms had appeared and, owing both to the severity of the bladder manifestations and to the unreliable history obtained, his surgeon wished to ascertain the exact nature of the condition existing in the viscus before attempting surgical interference for relief of the primary complaint.

The patient was a laboring man, thirty years of age, large, well-developed, but his general condition was bad, due to the ravages of appendicitis. He gave a typical history of chronic appendicitis, which covered a period of two months, with acute exacerbations from time to time. This history was supplemented, however, with the following symptoms: Agonizing urinary colic, frequent very painful and difficult

*Read before the forty-fourth annual meeting of the Medical Society of Virginia, at Lynchburg, Va., October 21-24, 1913

micturition accompanied by a discharge of a considerable quantity of bright, red blood, at the end of the act. The amount of urine voided at a given time was small and there was continually more or less dribbling.

Palpation of the abdominal contents elicited a hard, irregular mass in the right lower quadrant, which was dull upon percussion.

After experiencing considerable difficulty, I succeeded in passing a woven catheter into the bladder, thus drawing off a large quantity of urine, which some obstruction had made impossible for the bladder to empty.

In doing cystoscopy, I used Nitz's small observation instrument. When the cystoscope had penetrated to the internal vesical sphincter, I found to my surprise that it insisted on veering sharply toward the left before it would consent to enter the cavity. After the light had been turned on, I further found that it was necessary to deflect the instrument still more to the left before anything became visible, as the light seemed to be buried in some form of tissue. This proved later to be the right confine of the bladder. With this seeming anomalous position of the vesical ostium in view, I was prepared to find some grave pathological conditions existing there, but with the exception of a slight congestion of the mucous membrane the viscus was healthy. Neither the trigone nor the ureteral orifices were in their normal location. The bladder was twisted so that these anatomical structures were upon the right lateral vesical wall and it was pushed over and displaced to such an extent that this wall was almost on a line with the midline of the body.

Since the tissues of the bladder were uninvolved, this state of affairs was undoubtedly due to pressure of the tremendous mass involving the appendix. This growth had encroached upon, raised it above its normal position and partially invaginated the bladder upon itself.

Appendectomy was advised and immediately done. All urinary symptoms promptly subsided and subsequent cystoscopy revealed the bladder in its normal position and in perfect health.

Pathological examination of the removed tumor showed that the appendix was almost entirely destroyed and the remnants surrounded by a great quantity of infiltrated inflammatory tissue. There were a number of small abscess cavities in this tissue, the abscesses having undergone resolution. Removal was very diffi-

cult, owing to the numerous adhesions which bound it to its pelvic relations.

This is the first and only case of inflammation of the appendix I have ever seen which interfered seriously with the functions of the bladder, by encroachment upon it.

Case 2.—A urethral calculus in a male child three years of age with absolute occlusion of the urethra.

On May 25th, in the late afternoon, Dr. Garris sent me a child suffering with total stoppage of the urinary flow due to sudden occlusion of the outlet. The child was white, healthy and strong, with both family and past history negative.

Present history gave the following data: early in the morning the child attempted to empty the bladder; the flow of urine began without difficulty, but it suddenly stopped in the middle of the act. The child cried out with pain, which was localized in the perineum. Repeated efforts at urination failed to dislodge the obstruction—the pain becoming more severe as time worn on. By noon its parents became frightened and called in Dr. Garris, who at once located the trouble and, after ineffectual efforts to dislodge it, brought the patient to me without delay.

At the time of its presentation, the child was having repeated spasms of urinary colic, no urine having passed since early morning.

Examination showed that there was a foreign body lodged in the bulbous urethra. This obstacle was about the size of a big pea and felt hard, round and smooth.

Chloroform was at once administered. Thinking that the relaxation of the urethral tissues, under the anesthetic might permit the removal of the stone by the natural outlet, I endeavored to extract it by this route. All efforts were ineffectual and I was forced to do a urethrotomy. After the incision had been made upon it, I found that the calculus had been impacted into the tissue with such force by the pressure of the urinary stream behind it that there had been considerable damage to the urethra. The stone was lodged so tightly that I was compelled to use noticeable traction before it could be extracted. The calculus was rather soft and spongy and I crushed it into three pieces during removal. It was phosphatic in composition.

As soon as the obstruction had been obliterated,

ated, the bladder emptied itself, showing that there was no other stone in the urethral passage, and a search of the bladder with an instrument failed to elicit evidence of calculus remaining there. I introduced a small rubber catheter into the bladder and held it *in situ* by sutures through the prepuce. The perineal wound was drained with gauze. I did not attempt to close the opening in the urethra because this would not have been feasible, owing to the destruction of the urethral tissue. A stricture would have certainly resulted had I done so, as the edges could not have been drawn into apposition without a decided narrowing of the canal.

Although every precaution was taken to provide against this contingency, the child succeeded in removing the catheter several times during the few days following the operation, thus allowing the escape of urine through the perineal opening. However, this was productive of no bad results except a marked edema of the perineal and scrotal integument. This was reduced by numerous punctures.

On the fourth day the catheter was removed and the patient progressed beautifully from this time on. On the fifth, sixth and seventh days, I passed a number fourteen French sound, and, as a result, most of the urine began to be voided by the usual route.

As the little fellow did not take kindly to hospital life, I sent him home on the seventh day, with instructions to have the sound passed at regular intervals. Much to my delight, the perineal wound closed entirely in a few weeks and at present there is no sign of stricture.

With no wearying statistics in view, allow me to digress from the strict narrative for a moment. It is the consensus of opinion that urethral calculi are first formed in the kidney, from which they pass through the ureter to the bladder. They are then carried out by the urinary stream and lodge at some point in the urethra where there is a constriction of its calibre either of an acquired or a congenital nature. The most frequent anchoring place is the fossa navicularis; then the bulbous and prostatic urethra, in the order named. These stones are usually found in young men between the age of twenty and thirty. They are seldom encountered either before or after these years are passed, being very rare in both old age and childhood. Their composition is generally phosphatic. They grow steadily larger as the urinary salts sweep over

and are deposited upon them—ultimately interfering with urinary drainage and thus demanding their removal.

Case 3.—A small round cell sarcoma of the left inguinal glands, with apparent cure.

On December 2d, 1912, Dr. Wilson, of Portsmouth, sent Mr. B. to my clinic suffering with a painful left inguinal adenitis. Mr. B. gave the following history: White, age nineteen, single, a mill worker. Family history negative except that mother is suffering with tuberculosis at present. Past history indefinite but rather indicative of specific urethritis.

Present history:—For some weeks has noticed soreness and swelling in the left inguinal region. He gives as a probable cause a fall from a bicycle, at which time he struck his side upon a stone. In his daily vocation, patient works at a table, on which he constantly leans, resting the left groin against the edge. Has noticed slight soreness from this cause several times before. In the past few days the size of the swelling has rapidly increased and the pain has become so intense that it incapacitates him for work.

Personal examination showed the patient thin, undeveloped, anemic, mucous membranes pale, bright red flush in cheeks, the body and its functions normal. Temperature 103 F., pulse 100. Leucocyte count 13,350. Wassermann negative.

Examination of the genito-urinary tract revealed testes, epididymi, prostate and seminal vesicles normal. There were a few urethral threads in both the first and second glass of urine. No enlargement of the glands in the right inguinal region or elsewhere on the body.

The seat of the trouble was in the left inguinal region. Upon inspection, there appeared a tumor which embraced the entire chain of inguinal glands and which seemed to differ in no way from that form of adenitis so frequently encountered in this location save that it extended over a larger area of body surface than any that I had met before. The apex of the tumor pointed at a spot midway between the external inguinal ring and the anterior superior spinous process of the ilium. The integument over the tumor was tense, glazed and reddened, giving the impression of pus accumulated beneath it.

As soon as the palpating fingers came in contact with this mass, my surgical instinct was instantly on guard for the unusual. Although in-

spection logically gave reason to expect fluctuation, there was none present. The mass was irregular, nodular and gave to the sense of touch an impression very similar to that of a head of cauliflower. For the most part it was firm although there was a slight softening at the apex.

Inferiorly, the tumor extended for an appreciable distance below Poupart's ligaments, while superiorly it spread over the crest of the ilium and occupied a greater part of the left lower abdominal quadrant. Just over the crest of the ilium the growth dipped inward and seemed to direct upward between the internal and external oblique muscles. Muscle rigidity and tenderness could be elicited as high as the left upper quadrant.

Incision was made over the apex and a cheesy, friable, cauliflower-like mass of glandular tissue extruded itself through the opening. A specimen was sent to the laboratory and the report came back that we had to deal with a small round cell sarcoma.

Under other anaesthesia radical extirpation was attempted. It was necessary to make an incision six inches in length in the long axis of the body through the external oblique muscle in order to reach that part of the sarcoma involving the musculature of the abdominal wall. The growth was readily separated from the intermuscular fascia by blunt dissection because for some peculiar and unaccountable reason the muscle fibres themselves were not concerned in the sarcomatous change. However, that part of both the external and internal oblique muscles upon which the growth had encroached looked unhealthy and seemed to possess a low degree of vitality. Grave doubts were entertained lest their histological and functional integrity be permanently impaired. They were dull, lusterless, black in color, very closely resembling an old blood clot.

Below Poupart's ligament, it was very easy to enucleate the sarcomatous tissue from beneath the skin and fascia. In dissecting out that part of the growth involving the inguinal glands my troubles commenced. Beginning at the outer portion of the inguinal chain, I worked downward toward the external inguinal ring. At this point the mass plunged almost directly inward, coming into intimate relation with the femoral artery and vein. In freeing this portion of the sarcoma from the encircling tissues, I set up a most persistent and alarming hemorrhage which

seemed to ooze from every part of the operative field. The bleeding increased as the dissection progressed. Every expedient was used to check it but without avail. Compression of the femoral vessels above had no effect upon it. The patient's condition became bad. His previous anemic state coupled with low vital resource and inability to withstand shock brought me face to face with the proposition of either abandoning the hope of total enucleation or losing my patient. I quickly severed that part of the mass which had been dissected out from the remaining stump and finally succeeded in checking the hemorrhage by a combination of suture ligatures and external pressure. The patient was sent back to bed with very little hope being expressed for him.

All predictions failed in this case, however, as the patient rallied rapidly and regained his strength very rapidly. His convalescence progressed beautifully until one week after the operation when he was seized with agonizing pain in the region where the remnants of the sarcoma had been left. Two nights later a severe hemorrhage of arterial blood took place from the wound. The flow of blood was so alarming that the house surgeon took the first instrument which fell to his hand to clamp off the bleeding point. This instrument was unsterilized. Almost every day for another week the patient had hemorrhages. He became very weak, almost exsanguinated, and the wound was infected. There was a copious discharge of foul smelling greyish green pus, in which were numerous particles of necrotic glandular detritus. At the end of the second week the hemorrhages ceased and the pain which had persisted to this time disappeared. The wound became clean and the discharge stopped. His convalescence was then uneventful.

As soon as his condition would permit, I sent him to Dr. James Hunter for Roentgen ray therapy. This treatment was given a number of times and all symptoms of local infection soon disappeared.

Many pathologists agree that it is a difficult task to differentiate between a syphilitic and a sarcomatous adenitis. This problem was probably greater before the advent of the Wassermann test. With a possible conflict of diagnosis in view, I had several Wassermann tests made on this case and they were all negative. I attempted to give the patient potassium iodide du-

ring convalescence, but an idiosyncrasy made him intolerant to the administration of the drug. The fact that all Wassermann tests were negative and that the patient recovered without antisyphilitic treatment made me positive that the diagnosis of sarcoma was correct. Pathological examinations were made by Dr. Budd of the Medical College of Virginia, and Dr. Sprunt of Johns Hopkins.

In passing over that part of the narrative which dealt with the first post-operative hemorrhage, I laid especial emphasis upon the circumstances that the house surgeon used an unsterilized instrument to grasp the bleeding artery. I think that this happening has an important bearing on the final result in this case. The question which naturally comes to your lips is, since it was not feasible to remove all of the sarcoma during the operation and since the blood supply of the remaining part was not interfered with, how did the body purge itself of the evil still existing in Scarpa's triangle? Sarcoma does not die easily; in fact, it is well nigh impossible to kill these cancer cells!

My answer is purely theoretical, although it seems logical if there is any virtue at all in the use of Coley's serum. The infected instrument used by the house surgeon, or any infection which might subsequently have been introduced into the wound set up an inflammation which acted just as Coley's serum would. I can give no other answer.

I saw the patient just a few days ago and there is no sign of neoplastic recurrence. He has gained steadily in weight, is in splendid health and is regularly at work. You will observe that I headed this case as one of apparent cure. With the tremendous mortality of small round cell sarcoma in mind and remembering the almost certain recurrence of these dread growths, I do not dare to make a prognosis. There has been no recurrence to date and I live in hope of a happy future for this patient.

PARA-TYPHOID FEVER.*

By JOHN R. LITTLEFIELD, M. D., Cumberland, Md.

In presenting this paper it is not my intention to offer anything new on the subject, but rather to tabulate a few of the facts now in our

possession which serve to identify para-typhoid fever as a pathological entity.

Para-typhoid fever is an acute, specific, infectious disease characterized by the same clinical symptoms as typhoid fever, but differing from it in giving a negative Widal reaction with the bacillus typhosus—and by being of shorter duration.

The name para-typhoid was first used by Achard and R. Bensaude in describing two cases, the clinical symptoms of which were very similar to those of enteric fever.

The organism in these cases was isolated, one from the urine, and the other from a sterno-clavicular suppuration, and showed great similarity to the bacillus typhosus, differing from it however, by its action on certain carbohydrates.

Widal refused to recognize its similarity to the typhoid bacillus and believed the organism to be identical with the para-colon bacillus previously described by other authors.

However, in 1897, he and Nebocourt described a para-colon bacillus which they had cultivated from an abscess of the neck of a phthisical patient, and that showed the complete cultural properties of the organism described by Achard and Bensaude. When they tested this organism with the serum of various typhoid patients, they found that in general it was uninfluenced.

In the following years, cases were published in New York and Baltimore by Gwynn, Brill and Cushing, which could not be differentiated clinically from the picture of typhoid; however, the blood serum of these cases did not agglutinate the Eberth bacillus.

After this time workers in Germany described cases and recovered organisms corresponding to the bacillus first described by Achard and Bensaude.

Shortly after this three epidemics are mentioned,—14 cases in Holland, 19 cases in Rhine Province, 5 cases in Roumania.

The disease is caused by a bacillus which is culturally intermediate between the typhoid bacillus and the colon bacillus; it is Gram negative, actively motile,—in shape and size resembling the colon bacillus. It does not produce indol. Two types are recognized, bacillus para-typhosus A and bacillus para-typhosus B.

Hunt, in an analysis of 76 cases of suspected typhoid fever, found—

*Read before the Cumberland Academy of Medicine, at Cumberland, Md., October 15, 1913.

54.5 per cent to be positive only to bacillus typhosus.

25.7 per cent to be positive only to bacillus paratyphoid B.

9.9 per cent to be positive only to bacillus paratyphoid A.

It is now an accepted fact that the disease is as much a water borne disease as is typhoid fever, and, in fact, all the recognized sources of infection which apply to typhoid fever may be said to apply to para-typhoid.

Some few of the cases have been attributed to the ingestion of meat, but in the light of our present knowledge these were probably infections with the bacillus enteritidis.

Unquestionably some of the epidemics are due to contamination of either the food or water supplies through the agency of carriers.

As has been stated, the symptoms are those of typhoid fever, and thus far it is impossible to separate the two diseases so far as symptoms go. If there is a difference, it may be said that the clinical course of this infection is milder than typhoid and that the duration is shorter; however, it must be remembered that we have mild cases of typhoid infection, and in the light of future serological work performed on these cases, we may come to see that the majority of our present cases of para-typhoid are nothing more nor less than mild typhoid infections.

Herpes is more common in the reported cases than we would expect to find in typhoid, but the enlargement of the spleen is not so constant as it is said to be in typhoid. The headache does not persist as long as it does in typhoid, nor does one see a patient in the same toxic state at the end of the first week as we would expect to find in typhoid. From this we may assume that the toxin of this organism is not so potent as that of its brother—the bacillus typhosus.

In making a diagnosis of mild typhoid, we should ever bear in mind that it is impossible to separate the two diseases symptomatically; and until we are in a better position from a prophylactic standpoint—in this community at least,—a blood culture should be made of all cases of suspected typhoid, in conjunction with a Widal made a few days later. Our suspicions should be aroused in all cases in which the Widal is negative or conspicuously weak, and in these cases a Widal with the para-typhoid bacillus should be done.

It is agreed by all workers in this field that

the agglutination reaction among organisms in this class is specific, and this reaction offers us one means of accurate diagnosis.

Cases will present themselves which will give positive reactions to both typhoid and para-typhoid—cases of mixed infection.

Owing to the possibility of carriers of this disease being one of the potent sources of contagion, we should be on the alert and be able to exclude it in all of our diagnoses.

Only the prophylactic treatment of the disease concerns us at this time, as the nursing, diet and therapeutics of the patient are the same as apply to typhoid fever.

The various Departments of Health should make a practice of doing a para-typhoid Widal as a routine measure on all specimens of blood submitted from cases of suspected typhoid; otherwise, para-typhoid carriers will escape us, as they have undoubtedly done in the past.

The administration of the mixed typhoid vaccine should be encouraged,—but the profession should be advised by workers in the national laboratories as to the dose of vaccine required to confer immunity, and not be put in a position where we must accept the statements that are left on our desks by the “detail” man of a commercial house.

The prevention of para-typhoid is just as practicable as is the prevention of typhoid fever, and the prevention of one means the prevention of the other,—providing we recognize our carriers. To do this, serological work must be performed by competent workers.

In the outbreaks of typhoid to today, the investigators are all on the alert for the carrier, especially among those whose work brings them in contact with the food and water supplies of the community. The same zeal in locating the para-typhoid carrier will be displayed in the future, and more clean cut diagnoses will be made; otherwise, we will never be free of typhoid in its present forms, and the organism will continue its merry march through the alimentary tracts of men, and from the bladder and anus to our buccal cavities again.

I sometimes think that this disease offers us the same means to combat some of the lay ideas regarding typhoid fever. If the profession could brand it “fecal fever” or some other nauseating synonym and make it the common or popular name of the disease, it would convey volumes as to its etiology to the lay mind. This

has been suggested in connection with typhoid fever, but the word typhoid has been with us too long, it seems, to make a change popular at this time.

Dairy inspectors should satisfy themselves of the absence of para-typhoid carriers as well as the absence of typhoid carriers.

Editorial.

Information Wanted About County Societies.

Dr. Paulus A. Irving, Secretary of the Medical Society of Virginia, Farmville, is desirous of securing the names of all local county societies in Virginia, with the names of the presidents and secretaries. We, likewise, would appreciate the information from any interested members, in which case it will be forwarded to the secretary.

Tuberculosis in the Public Schools.

At the present time there are about forty-five thousand pupils in attendance in the public schools of the District of Columbia. Of this number about one hundred and fifty are known victims of tuberculosis in a communicable form. Day after day these dangerous pupils mingle with their fellows, more or less intimately, some exchanging lead pencils, drinking cups, even chewing gum, as well as various other articles.

Without question these pupils are a danger of the most active type to the susceptible.

The common drinking cup and the roller towel have been abolished; expectorating upon the floors, walls and hallways is prohibited, but the evil of association, oftentimes in close, poorly-ventilated class-rooms continues.

The Tuberculosis Society, of this city, has for a long time strongly advocated exclusion of these pupils from the schools, and, upon the recommendation of the Health Officer, the Commissioners have promulgated an order that will exclude these unfortunate children from the benefits of the public schools. The school law confers this power, and, as the number of tuberculous children of school age is increasing, great wisdom has been shown in this action.

Tuberculosis in all its forms is on the increase.

This is shown by reports from Registration Districts.

The report of the Health Officer of the District of Columbia for the year ending December 31, 1912, shows the following figures upon this subject among children of school age, that is, from five to twenty years:

	Total Cases	Deaths	General Mortality	Cases—White	Deaths—White	Mortality per ct.	Cases—Colored	Deaths—Colored	Mortality per ct.
Children from 5 to 10	21	14	66.6	7	3	42.9	14	11	78.6
" " 10 to 20	125	88	70.4	33	19	57.6	12	69	75
(year ended Dec. 31, 1911)									
Children from 5 to 10	30	18	60	9	2	22.2	21	16	39.6
" " 10 to 20	161	93	57.7	58	23	39.6	103	70	67.9
(year ended Dec. 31, 1912)									

If our investigation is carried further, we will find very few children have been excluded during the school year from the public schools by the Medical Inspectors by reason of tuberculosis; the record is blank for the years 1910-11, 1911-12, and 1912-13. The inference is the diseased pupils were in attendance at private schools or the inspection service in the public schools was at fault.

Neitner, of Berlin, speaking upon tuberculous infection, says, that in the majority of cases of tuberculosis the infection occurs during the first years of life. Hamburger and Schlossmann agree that 90 per cent. of all children up to the completed twelfth year are infected; that tuberculosis is a true children's disease, and is acquired during childhood. Neitner further says, in by far the greater number of cases the source of infection can be traced to the human subject suffering from open tuberculosis, resulting from family life within the home. And further, he states tuberculosis is not a school disease, and he maintains that the school cannot justly be held responsible for the spread of the infection.

Be this as it may, the question is open for argument to students of the disease. At the same time, those children unfortunate enough to be suffering from tuberculosis must receive the benefits of a school education, and the only solution of the difficulty is separate schools, open-air schools, or segregation.

To provide separate schoolrooms or school buildings and separate teachers will necessitate

the expenditure of considerable sums of money; whether these sums will be appropriated is another matter. Possibly in years to come the recommendations of the board of commissioners will be heeded and proper provision made for such children; until then very little can be accomplished.

The question is serious and demands immediate attention in a practical manner, and not by make-shift measures.

L. E.

Drs. Anderson and Lavinder to Lecture in Virginia.

Dr. John F. Anderson, a native of Essex County, Va., and now director of the Hygienic Laboratory of the United States Public Health Service, will speak on February 10, before the students of the Medical College of Virginia, and will the same evening address a meeting of physicians under the auspices of the Richmond Academy of Medicine. Dr. Anderson is one of the experts who discovered the method by which typhus or "spotted" fever is spread, and has made some remarkable investigations of the infection of measles. He will discuss these findings and other recent advances in the epidemiology of contagious diseases.

Dr. Claude H. Lavinder, a native of Lynchburg, Va., and now in charge of the Federal investigation of pellagra, will give two similar addresses on February 24. He will speak of pellagra and of the recent studies made of that disease.

The State Board of Health, at whose instance these doctors will lecture in Richmond, and the Richmond Academy of Medicine, unite in a cordial invitation to all physicians of the State to hear these experts, who have won high honors in the Public Health Service.

Tri-State Medical Association of the Carolinas and Virginia.

As a reminder to those who might otherwise overlook the date of the meeting, we again state that the Tri-State Association, composed of a number of prominent physicians in Virginia and both Carolinas, will convene in Wilmington, N. C., February 18, for its 1914 meeting. Dr. Southgate Leigh, Norfolk, Va., will preside, and Dr. Rolfe E. Hughes, Laurens, S. C., will be in his accustomed place as secretary-treasurer. North Carolina hospitality is so well known and appreciated, that, apart from the scientific

part of the program, the inducements offered should be sufficient to bring together a large attendance.

Prizes Awarded Richmond Doctors.

At the meeting of the Richmond Academy of Medicine and Surgery, January 13, in addition to the installation of officers and the annual banquet, much interest was added by the award of prizes for the best papers read before the Academy for the past year. The recipients of these prizes were Drs. James H. Smith, A. G. Brown and C. M. Hazen, for \$100, \$75, and \$50, respectively. Another series of prizes will be awarded for the best papers read during the present year. It was also decided that a course of lectures shall be arranged for by prominent speakers, the first of these to be given January 27, by Dr. Peterson of the Vineland, N. J., school for the feeble-minded, and will be open to the public.

Col. Gorgas to be Surgeon-General of the Army.

President Wilson has nominated to the Senate Colonel William C. Gorgas, chief sanitary officer on the Panama Canal, as surgeon-general of the United States Army. As there is no opposition, the nomination will likely be confirmed at once.

Prevalence of Communicable Diseases.

From *Public Health Reports*, for January 16, twenty-one States reporting, we note that the greatest relative number of cases of diphtheria for the first six months of 1913 was reported in New York, there being 2.36 cases for each 1,000 population. While Oklahoma had the lowest case rates, Virginia boasted the lowest fatality rates. During this same period, Virginia reported the largest number of cases of poliomyelitis though a number of States had a greater fatality from this disease. Virginia had the lowest fatality rate from scarlet fever, and tuberculosis. While Virginia came well to the front in the number of cases of typhoid fever, there were fewer deaths reported than from other States. While these comparisons are made only between States in the registration area, there may be inaccuracies or failures in reporting cases and deaths which might change these figures.

The Buncombe County (N. C.) Medical Society

Has elected Dr. Paul Ringer and Dr. G. S. Tennent, both of Asheville, as president and secretary-treasurer, respectively.

Dr. John W. Brodnax,

Of this city, associate professor of anatomy, Medical College of Virginia, delivered an address on "Artistic Anatomy" before the Richmond Art Club, January 13. Though an anatomist of note, Dr. Brodnax still keeps in touch with his artistic work.

The V. M. I. to Have Compulsory Typhoid Vaccination.

The Board of Visitors of the Virginia Military Institute, at a recent meeting, voted to make typhoid vaccination compulsory at that institution after this session. About one-half of the cadets, by written consent of their parents, have received the vaccination this year, and the board feels satisfied with results already obtained.

West Virginia State Board of Health.

Twenty-four applicants to practice medicine in West Virginia appeared before that State Board in November 1913. Of these, sixteen made the required average. Eight men were also admitted by reciprocity to practice in West Virginia.

Dr. Giles B. Cook

Delivered an address on "The Opportunity of the Nurse in Tubercular Work" at the Medical College of Virginia January 14. This is one of several addresses which have been delivered recently in an effort to encourage greater activity on the part of the nurses, many of whom have already rendered fine services, without charge, in the homes of the poor.

Hospital Zones to be Established in Richmond.

An ordinance, which will be under police regulation, has been passed providing for the creation of certain zones or areas in this city, to be known as "hospital zones." Signs will be posted and all unnecessary street noises will be prohibited within the zones. This ordinance has been in operation in some of the larger cities for some time.

Doctor Without License Fined.

A case recently came up in the courts of Henrico County, Virginia, in which a doctor was

fined for practicing medicine in this State without a license. He claimed to have come from Texas, and stated that he had only been practicing in this section for several weeks. His fine was \$30 and costs.

Smallpox in Virginia.

While no outbreaks of serious dimensions have been reported to the State Board of Health, December reports showed the presence of smallpox in twenty-three counties in Virginia, and a total of 171 cases. Since the first of the year, this number has been still further augmented by other reports. The disease seems to be confined to no one section, but to be scattered from the center to the boundaries of the State. Cannot the doctors of Virginia assist in the prevention of this scourge, by urging upon their clientele the necessity of vaccination? The fact that they have escaped smallpox to this time does not indicate that they may be immune to that disease.

Virginia Hospital Now Property of Richmond.

On January 16th, the Mayor of Richmond signed an ordinance whereby the Virginia Hospital was accepted from the trustees of the Medical College of Virginia, to be used as a city hospital, for a period of ten years. The Administrative Board was at once authorized to expend the amount of \$2,600 for repairs to the building.

Lowered Death Rate from Tuberculosis.

At the International Conference on Tuberculosis, held in Berlin in October, it was stated that in the past fifteen years the death rate from tuberculosis had diminished by one-third in the United States, England, France, Germany and Belgium, and by one-fifth in Austria, Switzerland, and the Netherlands.

American Medical Association.

Monday, June 22, 1914, is the date set for the House of Delegates of the American Medical Association to convene at Atlantic City, this year, and the scientific sections will begin their meetings on the 23rd.

The North Carolina Society for Mental Hygiene.

The first of its kind to be formed in the South, has been organized, the superintendents of the various State Hospitals—Drs. Anderson, Raleigh, Faison, Goldsboro, and McCampbell, Morganton—serving as a temporary executive

committee. Dr. Albert Anderson, to whose special work is due the organization of the Society, was made temporary secretary. The board of directors will number sixty.

New Hospital for Columbia, S. C.

It is announced that the board of trustees of the S. C. Baptist Hospital Company have purchased a tract of ground near Columbia for \$15,000, and will shortly erect a hospital to cost about \$600,000.

Georgia Surgeons' Club to be Entertained.

The Surgeons of New Orleans, La., have arranged an interesting set of clinics, to be given at various city hospitals, February 27 and 28, in honor of the Georgia Surgeons' Club. As these clinics occur at a time when Mardi Gras rates may be secured, a number of surgeons will avail themselves of this opportunity. Dr. R. M. Harbin, Rome, Ga., secretary of the Georgia Club will furnish further details.

Flower Hospital, New York, Opens Private Pavilion.

On January 17th and 18th, a new private patients' pavilion at the Flower Hospital, 450 East 64th St., New York City, was opened for the inspection of the profession and laity. This pavilion is to meet the demands of those who wish to pay in full for medical care and attention, as for over twenty-five years the hospital has been devoting its energies alone to those who were unable to pay to any extent for services rendered.

Sterilization Act Unconstitutional.

It was recently decided by the Supreme Court of New Jersey that the sterilization of epileptics, the feeble-minded, other defectives and criminals, which law was enacted a couple of years ago, is unconstitutional.

Louisiana Inaugurates Hookworm Campaign.

The State Board of Health of Louisiana has commenced upon a campaign against hookworm disease, with the aim to eradicate the disease by securing better sanitation. Records show that 10,885 cases have been treated by physicians in that State to this time.

Eugenic Marriage Bill Defeated in South Carolina.

A bill requiring satisfactory health certificates of male applicants for marriage licenses was defeated in the State Senate of the South Carolina Legislature by a vote of 22 to 17. A cita-

tion of the complications following the enactment of a similar law in Wisconsin was apparently in large measure responsible for the result.

Wanted—A capable physician to take charge of a \$2,000 country practice for 12 months. Am moving out of territory. Address "W. S." care *Va. Medical Semi-Monthly*, Richmond, Va.—(Adv.)

Obituary Record.

Dr. Waller Morton Holladay,

A prominent and beloved physician of Prince Edward County, Va., died at his home at Hampden-Sidney, December 21, aged 49 years. He had been suffering from Bright's disease for some time and his death was not unexpected. He graduated from Hampden-Sidney College in 1883, and two years later took his M. D. degree from the Hospital College of Medicine, Louisville. In 1887, he joined the State Medical Society. For a number of years he had been the college physician. His widow and four little girls survive him.

Dr. Staley E. Young,

Born at Grant, Va., in 1862, died at his home, Baywood, in Grayson County, Va., January 9, his death being the result of a complication following a short illness. After completing his academic education, he studied medicine at Baltimore Medical College, from which he graduated in 1893. He was physician for the General Chemical Company in Carroll County, and examiner for several life insurance companies. He became a member of the Medical Society of Virginia in 1904. He is survived by his widow and a child.

Dr. John Domingo Fernandez,

One of the most prominent of Florida physicians, died at his home in Jacksonville, December 15, following cerebral hemorrhage, aged 65 years. He was one of the organizers and for many years secretary of the Florida Medical Association, and was closely identified with all medical interests in his State. He studied medicine at the Medical College of Virginia, Richmond, graduating in 1870.

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Original Communications.

ASEPTIC METHODS OF THE PRESENT DAY IN THE FIELD AND IN THE HOSPITAL, WITH A RETROSPECT.*

By ARPAD G. GERSTER, M. D., New York, N. Y.
Professor of Clinical Surgery, Columbia University;
Surgeon to Mount Sinai Hospital, etc.

Sometime last spring, my friend, Professor von Eiselsberg, of Vienna, kindly sent me the reprint of a paper read by him May 9, 1913.[†] It outlined "the principles of and proposals for the simplification of the first dressing of accidental wounds." He showed in the straightforward and plain way of the expert, that in caring for the freshly inflicted accidental wound of everyday life, all contact of fingers with the vicinity of such a wound should be carefully avoided. This implies the abandonment of washing with water, plain, boiled or antiseptically impregnated; the disuse of antiseptics in powdered or liquid form, such as, f. i., iodoform, bismuth, tincture of iodine; and the simple application of a suitable pad of sterile, aseptic gauze fastened with a bandage. When no large vessel had been injured, such moderate compression will suffice to stop bleeding. Where a large vessel had sustained an injury, there a tourniquet or Esmarch's bandage, or in their absence an elastic suspender, or a "Spanish Windlass" should control hemorrhage. The wound itself should not be touched and should be covered with and secured from contamination by a simple dry gauze dressing. Should the wound not be on an extremity but f. i., in the groin or the neck, there packing must be resorted to. To control hemorrhage, this should be done with a long strip of sterile gauze, sup-

ported by a compressive external dressing and firm bandage, until the patient can be placed on the operating table of a properly fitted hospital or its equivalent. These measures will take care of the overwhelming majority of all accidental wounds. Of exceptions, fortunately of great rarity, I had myself opportunity to deal with one. A butcher in cutting meat on a block, had stabbed his right groin just at Poupert's ligament, and had divided about two-thirds of the circumference of the external iliac artery. The hemorrhage was appalling. I was passing the shop, and was attracted by piercing screams. The man lay prostrate, nearly exsanguinated on the bloody sawdust of his shop. The small wound, still spurting arterial blood, was quickly exposed, and proximal, pressure proving ineffectual, the index finger was deeply introduced controlling hemorrhage. While further aid was coming, I had to sit on the floor by the patient, compressing the vessel. Within twenty minutes two colleagues had been summoned, fortunately both known to me, and versed in what was to be done. An operating table was improvised in the back of the shop behind a wooden partition, the patient was anaesthetized where he lay, and was then carried to the table. Then the vicinity of the wound was shaved and soaped, and the cleansed finger of one of the assistants substituted for mine. This gave me a chance for a soap wash of the hands, after which a long incision extending upward and downward from the wound exposed the vessel. This was tied above and below the tip of the compressing finger and the ligatures effectively controlled the hemorrhage. The remaining uncut bridge of the artery was divided, permitting retraction of the two segments, whereupon the wound was loosely packed and protected by a moist dressing. No further trouble followed, the patient recovering in the usual time. 'Squeamishness about introducing

[†]Wiener Klin. Wochenschrift, 1913, No. 23.

*Read by the author—an invited guest—before the forty-fourth annual meeting of the Medical Society of Virginia, at Lynchburg, October 21-24, 1913.

the unwashed finger into the wound would have, in this instance, cost the patient's life.

To return to our subject I may say, that the principles laid down by von Eiselsberg are earnestly endorsed by myself, and have received the unqualified approval of all the surgical authorities of Europe. The purpose of von Eiselsberg's paper was to acquaint with its principles not only the general profession, but all those who may be called upon to render first aid to a wounded fellow being, such as are nurses, policemen, firemen, druggists and the laity. First of all, of course, the average medical man must be converted from the usual, futile and dangerous attempts at disinfection which are still in vogue. He must be encouraged to adopt the simpler, easier and more rational way of dealing with accidental wounds. We must become imbued with the value of the practical application of the medical principle of "*non nocere*," that is not to cause harm. Eiselsberg's article contains a clear exposition of the practical details of this subject, the study of which is especially recommended to railroad, mining and factory surgeons.

In the Vienna professor's paper you see the fulfilment of the last stage of the development of the aseptic principle. Its import lies in this, that it bids us to discard antiseptics not only in the operating room where the field of operation receives careful preparation, but enjoins also abstention from all attempts at disinfection when dealing with accidental injuries inflicted on surfaces considered habitually unclean.

Sixty years of unceasing toil in laboratory, the clinic and in the field were necessary to bring us to this last phase of the development of the application of a simple principle. Observations, demonstrating that an extensive soiled wound could heal under a blood crust without suppuration, were made long before Lister. Thus you will find in Astley Cooper's classic work on fractures, the history of a case of compound fracture of the ankle joint with extensive laceration of the soft parts, where immediately after the injury a lay hand had bound up the damaged member in what we would nowadays call "rags." Cooper found the position of the foot fairly good, the hemorrhage arrested, and the blood-soaked dressings firmly caked and dried to the injured parts. The patient being free from fever and pain, he de-

cided with rare good sense not to disturb the *status quo*. To his astonishment and pleasure, the usual inflammation, suppuration and fever failed to appear, and the primitive dressing having come off spontaneously after the lapse of a fortnight or so, the wound was found nearly healed, the man ultimately recovering with a useful member.

In my student days in the sixties of the last century, textbooks and teachers enjoined that in the presence of an accidental injury the surgeon's first duty was a thorough digital exploration of the wound in all its recesses. To this practice mainly must be attributed the frightful mortality following compound fractures in those days. No surgeon then ever cleansed his hands *before* any operative undertaking. Sinuses and abscesses were subjected to the same sort of digital exploration, and there is no doubt whatever in my mind that it was the surgeons' hands, perpetual carriers of infection, which inoculated every fresh wound with the seeds of destruction and death. President Garfield's fate is a familiar and striking illustration of this fact. You gentlemen of better days, do not realize the horrors of surgery in those times, do not appreciate the amount of courage and enthusiasm needed to make surgical practice tolerable. Among my teachers in Vienna, Dumreicher was thoroughly ossified in the deadly practices then prevailing everywhere, and the mortality of his clinic was appalling, sometime reaching fifty percent of all operative cases. My first case in his clinic,—students are required to serve as clinical clerks in Vienna,—was that of a muscular young butcher, who previous to getting married, had a lipoma of the shoulder excised. Three days after the operation he was dead of phlegmon and erysipelas. Billroth, my other teacher, had entirely abandoned the closure of all wounds, and left his amputation stumps unsutured, undressed and wide open, exposed to the air, without any dressing whatever. They also suppurated; but drainage being excellent, destructive extension of the suppurative process was rarer, or if present, was noted early, and could be checked by timely incision and counterincision. Even so his mortality after amputation was rarely below 30 per cent, mostly due to erysipelas, secondary hemorrhage and pyemia.

In 1868, on a visit at Budapest, I heard in the clinic of Professor Kovach the first men-

tion of Lister's name; one of the assistants gave us Lister's theory about the exclusion of the atmospheric air (and with it of bacteria), from non-infected wounds and cavities, demonstrating to us on an inguinal bubo the manner of opening an abscess under the protection of a piece of tinfoil, attached to the site of the incision by a thick layer of a putty-like substance composed of fuller's earth, oil and carbolic acid. This poultice-like mass was laid over the bubo, then a bistouri was passed under it into the abscess and withdrawn, the contents of the cavity escaping under gentle pressure in the track of the knife; the tinfoil and putty remaining *in situ* as a dressing. He assured us that a bubo treated in this way healed much more readily and never showed a tendency to phagedæna, a form of destructive ulceration, of which frightful examples could constantly be met with in surgical clinics. I have seen some that reached up to the navel and extended downward to the middle of the thigh.

In 1870 or 1871 Professor Dittel of Vienna sent his first assistant to Glasgow to observe the methods of Lister and to learn their application. A number of patients, suffering from similar forms of chronic suppuration of the lower extremity, were reserved for the trial of the new treatment. Amputation was to be done on one-half of them according to Lister's new methods; the others were to be operated on by the usual procedure of the clinic. An enormous crowd was assembled in Dittel's operating room to see the new procedure, and the occasion was the subject of lively conversation over students' and doctors' beer-mugs. The result of the experiment was this: All those operated upon by Lister's method died; of the others one-third, the usual 33%, survived. Naturally, though foolishly and unjustly, the method met with universal condemnation, and for the time Listerism was dead in Vienna. Billroth, a devoted pupil of Virchow and strongly rooted in the morphological conception of morbid processes, stood coldly apart from the new idea, retaining his negative standpoint for a considerable time afterwards. This was shown by the quarrel that broke a lifelong friendship between him and Volkmann of Halle. But Billroth's assistants did not share his views. Czerny, Woelfler, Mikulicz and others were assiduous in thoroughly acquiring the new method, and finally succeeded in accomplishing its acceptance

by their master. Without it, Billroth's pioneer work in laying the foundation of modern intestinal surgery could never have been done. This, however, must be said, that the method finally accepted in Vienna was not that originally proposed by Lister,—carbolic acid solution (1:20), protective, 8 layers of gauze impregnated with carbolized rosin, and the carbolic spray—but was its modification made by Volkmann of Halle, who, while retaining and rigidly enforcing the principle, freed the method of Lister's arbitrary and encumbering trammels, giving its details a rational basis and opening the possibility for further development.

Words can hardly describe the joyful astonishment I felt on my visit of the Halle clinic in the winter of 1873-74, seeing for the first time in my life the faultless primary healing of a series of major amputation wounds, but especially four cases in which the results were equally perfect after resection of the knee joint, an operation the performance of which was deemed until then on the continent of Europe almost universally equivalent to premeditated homicide. The remembrance of the holy zeal of Volkmann and of his assistant, Schede, in the cause remained with me as a precious talisman and a source of perennial enthusiasm. If Lister had invented the antiseptic method Volkmann made it practical. He had been the real disseminator of the new doctrine, which soon conquered the world. Long after the method had taken firm root in America, most of the English brethren of Lister either held aloof from, or openly scoffed at it. The men of the older school had to die out before it struck firm root in English soil.

It is a matter of history, that the first demonstration on a grand scale of the utility of the Listerian principle was given to the world in Volkmann's clinic at Halle. Here began also the unexampled flight of surgical daring and enterprise into new and newer, hitherto unapproached fields. To Volkmann himself we owe among others, the fundamental work in the surgery of the osseous system and of the joints, of the breast gland and the rectum. At my visit there, carbolic acid and the spray were still paramount, and the general plan of management was decidedly antiseptic, not aseptic. The treatment of compound injuries then prevailing will interest you. Its latest reflex was

felt in New York in the middle of the eighties, when Dennis published the splendid results of the methods as then practiced in Bellevue Hospital. The Hallensian treatment of compound fractures consisted in shaving, scrubbing of the limb, and in copious irrigation of the field of injury with a carbolic solution. Every recess of the complicated wound was carefully sought out, made accessible either by "*debridement*" (division of resisting bands), or by counterincision. Clots and dirt were removed, each recess was drained and then the limb was either firmly encased in a fenestrated plaster splint, or suspended from a gallows in a wire cradle, moulded to the shape of the limb. Crude and almost brutal as this procedure appears to us today, it had enormous merits over what had gone before. Limbs were now regularly saved when formerly primary or secondary amputation was deemed an indispensable life-saving, however uncertain measure.

I reached New York in the month of March, 1874, and visiting the hospitals of New York and Brooklyn, found hardly a trace of serious endeavor in the new direction. General unbelief and in some important quarters open hostility was shown not only towards the method, but also personally to those who advocated it. It was a fad of self-advertisers and practice hunters to some; others of the elder men, who felt the duty of giving the method a trial, made ridiculous and fatal mistakes in its application, and caused it to be discredited. We younger men had for a time a hard fight, but before the results, which interested everybody and could not be ignored, purely theoretical opposition and contemptuous denial could not stand up for very long. In the ten years between '74 and '84 the battle was won along the entire line; Senn in the West; Lange, Weir, Sands, McBurney, Bull and the present writer, in New York; Keen in Philadelphia; Porter, Richardson, Homans, Mixter and others in Boston; Halsted in Baltimore; Kinloch in Charleston, each and all doing their share in developing and spreading the doctrine in the various sections. Compare this whirlwind of enthusiasm with the torpid indifference encountered by Lister in the land of his birth!—a splendid demonstration of the unprejudiced and intelligent receptivity of the American profession.

The enormous increase in the absolute number of operative cases was a direct consequence of the increase of safety in operating. Everybody was then more or less of a tyro in the new departure, and everybody had to go through the disagreeable school of experience provided by everybody's mistakes. Thus it soon became manifest that carbolic acid was a poison and that its use entailed serious dangers. This conviction, in its turn, first served as a stimulus to the search for less deleterious or entirely harmless disinfectants, secondly led to the recognition of their uselessness and to their ultimate abandonment. I will not weary you by relating the rise and fall of salicylic acid, thymol, boric acid; of iodoform, bismuth and a host of other antiseptic solids and fluids. They all had their day and each of them taught us useful, if not painful, lessons. The general tendency was unmistakably towards simplicity and the abandonment of the "sacred ritual" of the earlier days. *Prevention* of infection became the watchword and a clearer comprehension of the importance of *principle* as contrasted with *technical detail* was gaining firmer and firmer root in our comprehension and practice.

In the course of the Russo-Turkish war of 1876, a new and most important development of the aseptic principle in dealing with gunshot wounds became manifest. Von Bergmann of the University of Dorpat reported from the field a remarkable series of observations made on compound gunshot injuries of the knee and other large joints. The overwhelming number of the wounded from the Balkan battlefields taxed the physical powers of the medical officers to the utmost limit of endurance. Thus it happened, that the force of necessity compelled them to devote special attention mainly to serious hemorrhages and to deal with the rest of the wounds, flesh or compound, in summary and simple fashion. In gunshot fractures the points of entrance and exit were simply covered with a pad of dry dressing without any attempt at local disinfection, and then the limbs were firmly encased in solid plaster of Paris splints, fit for transportation. Most of these, not manifesting any signs of disturbance, were left unchanged for weeks. When the splints were cut away, it was found that this simple treatment had achieved what had never been seen before. Not only did the wounds heal without suppuration,—and it made little difference whether pro-

jectiles had been left imbedded or not,—but the most remarkable result of this treatment was the fact that a respectable number of the joints had retained all or more or less of their functions. Von Bergmann thereupon formulated the thesis that occlusion without attempts at disinfection, followed by firm fixation, was the normal method of treating penetrating gunshot injuries of the joints and bones, a teaching generally accepted and put to use by the profession with most excellent results in subsequent wars. This principle was then gradually extended to other injuries not demanding instant interference, and so we have completed the circle and have come back to the gist of Professor von Eiselsberg's paper.

In conclusion it is necessary to state that where strict and reliable asepsis cannot be had and safely maintained, the abandonment of the antiseptic principle in the operating room is a mistake. Even where asepsis is reliable, we must in certain cases be ever ready to return to the use of irrigation and antiseptics. Many lives might have been saved if surgeons had not been deluded to trust too much to an imperfect asepsis. Serious lapses from asepsis do still occur in the best managed hospitals, and are apt to be followed by fatal consequences. I have had to report last year one of these sad mishaps to the American Surgical Association. In a case of fracture of both bones of the forearm with deformity and loss of rotation, the fragments were liberated out of a massive callus, both radius and ulna were separately Lane-plated, and a flap of the brachial fascia was interposed between the bones to prevent re-formation of a connecting callus. Most rigid precautions against accidental infection had been taken, and the work was smoothly and rapidly accomplished. On the fourth day after the operation the patient died of a fulminant septic destruction of all the soft tissues of the arm, presenting a striking illustration of that form of phlegmon first described by Pirogoff under the name of acute purulent oedema. Evidently during operation a destructive anaerobic bacillus had been introduced into the recesses of the complicated, though well drained wound, most probably through the instrumentality of an insufficiently sterilized rubber glove. In similar cases only new gloves should be used by surgeons and attendants, as neither dry nor wet disinfection of an infected glove offers absolute

warranty against infection. Had I in this case followed older methods, using disinfectant irrigation while operating, perhaps my patient's life might have been spared.

34 East Seventy-fifth Street.

PROSTATIC HYPERTROPHY AND ITS RELIEF BY SURGICAL MEASURES.*

By R. C. BRYAN, M. D., Richmond, Va.

It would be impossible in the allotted time to consider in detail the many interesting features of prostatic enlargement. Although the etiology of this condition is still a mooted question, the fact remains that the prostate is a part of the generative and not of the urinary system, and it is only by virtue of its gradual hypertrophy, compromising the urinary outflow, that the patient finally has his attention attracted to his condition, and, on account of sleepless nights and frequent demands, comes to seek surgical relief.

The frequency of hypertrophy may be expressed by stating that an appreciable enlargement exists in about one-third of all males over 60 years of age and that it presents evident symptoms in only one out of every 20. Although the overgrowth is in eighty per cent. of cases benign, in twenty per cent. of all cases cancer is found to be present.

At the meeting of this Society in 1907, the writer had the opportunity to classify enlargement of the prostate, and gave at that time three divisions:

1.—In which there was small residuum, kidneys and bladder healthy, and the patient unaware of his condition. This is the earliest stage of the development of the disease and the one particularly amenable to surgery.

2.—Enlarged prostate characterized by catheter life or overflow, bladder injected, large residuum, kidneys and heart compensating however. General health fair and patient attending to his daily work. This classification is the one that seeks the surgeon and is uniformly operated upon with excellent results.

3. Characterized by retention, incontinence and systemic breakdown. This, the terminal stage of urinary incarceration and absorption, also comes to the hand of the surgeon and from

*Read before the forty-fourth annual meeting of the Medical Society of Virginia, at Lynchburg, October 21-24, 1913.

the exhausted state and uræmia, practically constitutes the mortality from operation.

It would be interesting here to take up the insidious breaking down of the general body from this mechanical embarrassment. The same tumor in another region, not pressing upon or compromising vital organs, would be carried for years with no discomfort or sequelae.

Griffith described the development of the prostate as follows: "The normal tubular glands of the urethra on its posterior surface, especially on each side of the verumontanum, grow outward, backward, and finally turn and come forward so as to enclose the sides of the urethra, and at last coalesce on its anterior (i. e., superior) surface. During this growth these glands project into and between the muscular fasciculi of the thickened posterior half, of the external circular non-stripped muscular coat of the urethra in this situation.

"This external circular layer of muscle is the continuation of the circular coat of the bladder, the bladder's external muscle wall (which is longitudinal) crossing at, and being inserted at or near the vesical orifice of the urethra." (See Deaver, "Enlargement of the Prostate.")

The significance of this, pathologically, is readily seen in the formation of lips, ball valves, or middle, third, or Home's lobes at the vesical orifice of the urethra. That these lobes do not exist as an anatomical entity is pretty well conceded. They are, in reality, enlargement of accessory prostatic glands situated beneath the vesical mucosa and within the limits of the internal sphincter of the bladder: If it were an adenomatous mass springing from one lateral lobe, and sliding under the mucous membrane, the internal sphincter is not separated from the bladder by the growth but shoved ahead of it. Ciechanowski has shown that in the development of the so-called middle lobe, that the tumor is formed between the vesical mucosa and the sphincter, which, by keeping the prostatic urethra constantly open, develops an urinary incontinence, residual urine, elongation of the urethra, insufficient evacuation,—in short, all the symptoms of prostatic hypertrophy may be found as the result of this aberrant enlarged gland.

It is in this state that urine trickles around the gland into the prostatic urethra, ballooning or dilating it, so that several drops to an ounce may be removed per catheter deceiving the

operator who thinks he has gained the bladder.

Another condition which may arise, markedly simulating enormous hypertrophy, is the "bar at the neck of the bladder." This is caused by a uniform and synchronous enlargement of the lateral lobes which, tending to spread away from each other, separate or raise a fold of mucous membrane taut across the vesical orifice. This at times proves to be a serious impediment to catheterization and a positive barrier against the evacuation of the bladder.

Contracture of the neck of the bladder also is not infrequently confounded with prostatic hypertrophy by virtue of its obstruction to the urinary flow. This is due to a replacement fibrosis at the internal sphincter with consequent stenosis to such a degree that the bladder is unable to overcome it.

In both of these latter two states, rectal examination gives no clue, and both at times offer great difficulty to cystoscopic investigation. So that your writer would suggest suprapubic cystotomy in all instances where diagnosis is awaiting and the tired and faltering bladder demands rest. The operation may be quickly and painlessly performed under local anaesthesia. The condition is rapidly cleared up, physiological rest is established, the outcome is happy and the patient grateful. If prostatic, the gland may be removed later, any valve may be incised, the stenosed or stretched, pedunculated lobes snipped off, and the interior of the bladder can be studied and treated accordingly: the danger of the operation is practically nil, much less than allowing the retention and inevitable breakdown, which in course of time must make itself evident and jeopardizing to life.

Only recently a patient 81 years old came under observation, who for two weeks had been losing sleep and rest through the incessant calls of an imperious vesical tenesmus. The prostate was moderately enlarged, the urine infected, and there was a constant haematuria. Suprapubic cystostomy under novocaine gave rest to the bladder, the wound healed in three weeks and the old man is now able to walk about the house with normal calls by day and only four or five times by night. Prostatectomy would never have been borne.

The writer would call attention to some interesting anatomical and pathological states,

a knowledge of which influences prognosis, direction of attack and after-treatment.

In some instances the urethra has been found merely grooving the anterior or upper surface of the prostate; in the large majority of cases it lies so that one-third of the organ is anteriorly and two-thirds posteriorly situated. The glandular acini of the prostate are supported by fibrous tissue and it is the peripheral condensation of this which forms the capsule. This is not to be confounded with the sheath which is derived from the pelvic fascia.

The prostate is attached to the rectum by two prolongations of fibrous connective tissue, the recto-vesical fascia, or fascia of Devovilliers, which is really an invagination of a serious process of peritoneum which is divisible into two layers in the adult, although it has no cavity.

It is this fascia which remains after a suprapubic enucleation and consequently explains the anatomical impossibility of urinary extravasation in the peri-rectal and subperitoneal cellular tissues.

Extravasation does occur in the cellular tissues of the abdominal wall and into the space of Retzius, but an effective and absolutely resistant barrier is thrown posteriorly and inferiorly to prevent urinary infiltration in the form of this dense sheath of fascia.

This feature cannot be gainsaid as a natural protection to the pelvic structures and as a safeguard to the removal of the gland by the suprapubic route.

The percentage of mortality in suprapubic prostatectomy has been considerably reduced in recent years by those skilled along this line of work, so that now it is practically the same as by the perineal route. It is interesting to note the different schools: The French, the followers of Albarran, in the Civiale ward of the Hospital Lariboisiere in Paris, adopt only the suprapubic route. Professor Marion has lost no case in the last twelve months in a series of about 65. All are operated on by the suprapubic route, the enucleation is done either by the intra-urethral (Bentley Squier) method, or by starting over the most prominent part of the tumor presenting into the cavity of the bladder. Care is taken not to depress the bladder and disturb the relationship about the space of Retzius. After the removal of the gland and while the patient is on the table, a continuous stream of hot water, per urethram, flows into the blad-

der for ten minutes; the prostatic pocket is then packed with iodoform gauze, a tail of which is left outside through the wound. This is removed in three days. A large tube is inserted through the wound into the bladder cavity and drainage established by syphonage into a vessel under the bed. The bladder is sewed tightly about the tube with catgut and the abdominal wound is brought together snugly. This large tube, about an inch in diameter, is replaced by a smaller one in three days, which again in turn is removed entirely in twelve days. The results are apparently excellent.

Your writer saw several convalescent cases, and would criticize only the length of the incision, and the packing of the prostatic cavity with gauze; this, they claim, does away with the distressing hemorrhage which at times arises a few hours after the patient has been returned to bed.

The results of this method are so uniformly successful that, as Prof. Marion says, he can see no reason for changing in any way the technique or after-treatment of these cases. Computation of the urea output by Ambard's method is estimated before each operation, and, if low, medication and attention are directed along this line until the subject is considered able to stand the ordeal. In other words, the cases are selected for radical removal. Those of low urea output with non-compensating kidneys and heart are allowed the choice of suprapubic permanent drainage, or drainage per urethram, operation being refused. The mortality, therefore, in these selected instances, is due to the exigencies which arise in any series of post-operative cases, such as ether pneumonia, embolism, cardiac and renal failure, etc., and must therefore be *small*. At St. Peter's Hospital, in London, where Mr. P. J. Freyer (the pioneer in suprapubic removal), Mr. Reginald Harrison, and Mr. John Pardoe operate, the results and mortality are taken as a standard. For it is here that about one thousand enucleations have been performed with the astonishing mortality rate in non-selected cases of about 5 per cent.

A generous median line incision exposes the bladder which is now filled with fluid and fully distended. Care is again exercised about disturbing the space of Retzius; the gland is quickly and cleanly removed, the intra-urethral method being (as in the French Hospital) the one of choice; median bars or valves are incised and blood clots removed.

Irrigation is carried on through the urethra until the bleeding is satisfactorily controlled. A large tube, one inch in diameter, is inserted just into the bladder and is cut off even with the skin surface; a small wick of gauze is laid down to the space of Retzius, the bladder is sewed tightly about this tube with catgut, large copious dressings of gauze and cotton are applied on the abdomen, which absorb the urine and must therefore be frequently changed. The bladder is irrigated through this abdominal tube once daily with hot boracic acid. Blood clots may be removed from the bladder by long dressing forceps. The urethra is never touched except for the one irrigation at the time of operation. In three or four days the large tube is removed and replaced by a smaller one which is also (as in the French School) finally removed in 12 to 14 days. The prostatic cavity is packed only in cases of severe hemorrhage, which rarely occurs. Emphasis is laid on the fact that the urethra must *never* be instrumented.

At Charing Cross and London Hospitals the technique is practically the same. Here at times the patient is turned over on his belly and encouraged to lie this way for thirty minutes or so at a time, thus favoring a gravity drainage which they claim is very important.

The Austrian school, with Zuckerkandl as its leader, prefer the suprapubic route and adopt this route of attack regularly. After removal of the gland, an urethral catheter is inserted and the suprapubic wound practically closed but for a small catheter around which the bladder is tightly and snugly sewed. This abdominal tube is removed in a few days and the bladder allowed to heal. It would appear then that the abdominal attack is the one of choice by the larger number of surgeons. The bugbear is drainage. With a double flow catheter, which is kept going constantly for three days so that the bladder is continuously irrigated, we have had no trouble in establishing very satisfactorily thorough evacuation, nor have we had a serious hemorrhage from the ruptured venous plexuses in the prostatic sheath. In none of our series have we had to resort to packing the cavity with gauze. Pressure upon the prostatic cavity, folding down and holding there for a while the reflected mucous membrane, thorough irrigation with hot water or iodine (cherry red) while the patient is on the table, have, in our experi-

ence, proven sufficient to control any hemorrhage which appeared to be starting. We see no use of the enormous tube used by the English and French, and although they were formerly employed, they have now been abandoned for double current catheters one-third to one-half the original diameter—that is about one-half to one-quarter inch in diameter. Iodine effectively dissolves out the blood clots and we have not noticed any tube to be blocked in this way. We would call particular attention to the importance of leaving the urethra alone at all times; truly *noli me tangere* is the watch-word here. In the process of granulation, urethral instrumentation, even injection, may be of great damage, jeopardizing the life of the patient; the prostatic pocket is entered, laceration and bleeding follow, suppuration is encouraged, and a cess-pool for urine and decomposition is established; the danger of emboli are evident, and profound shock, urethral fever, depression, with suppression of urine, may be traced to forcible or even gentle instrumentation of the lacerated urethral and vesical mucous membrane.

The writer would call particular attention to the incision and care of preserving the anatomical relationship of the structures about the anterior wall of the bladder. This was given peculiar emphasis by each of the schools that was visited. The peritoneum is reflected upwards and held so with a gauze pack; after the bladder has been anchored by two silk guide sutures, a high incision is made into the bladder. There are several advantages to the high incision,—the veins, cellular tissues and peri-vesical fat are not so well developed here as more inferiorly, the wall of the bladder is thinner, the organ is not so fixed, and can be more readily displaced or sewed to the skin if necessary in permanent cystostomies, a better view of the cavity is obtained, and in the very fat subject the accessibility of the prostate is much more easily accomplished. These are small points but ones that cannot be discarded.

At St. Peter's Hospital, in London, after suprapubic prostatectomy, there has never been a recurrence demanding a second operation. This would seem to discredit the belief of those who claim that prostatic hypertrophy is the overgrowth of one or more glands which, developing rapidly as an uterine fibroid, presses the rest of the organs off to one side, and that this enlargement alone is the only structure which

is removed by operation. If the larger part of the organ were left behind, it would appear that in a series of 1,000 cases some single gland of the remaining prostate proper would take upon itself the individual prerogative of hypertrophy, yet such has not been the case. Again, how can it be explained according to their theory that the urethra is so uniformly found in the specimen taken away, tunneling and symmetrically surrounded by prostatic tissue? The writer believes that occasionally some small peripheral overgrowth, which has burst through the prostatic capsule and become imbedded in the sheath, may be left behind, but that practically in all instances the entire gland is removed by the suprapubic enucleation.

Squier determined in vesical removals of the prostate that the nearest approach to the capsule proper was by way of the urethra. We have already called attention to the tunneling of the prostate by the urethra. The superior commissure possesses but few, if any, glands. This means that overgrowth rarely, if ever, occurs here, and, as an anatomical landmark, is therefore more constant and dependable than any other part of the organ. With the finger of the left hand in the rectum supporting and balancing the prostate, the index finger of the right hand is thrust into the prostatic urethra through the internal sphincter opening for about one inch, the nail is turned upwards and bursts or scratches through the roof of the urethra until it meets the sheath enveloping the gland. The line of cleavage is rapidly determined; the index finger now sweeps to the left and to the right and the gland is nicely hulled out. Now and then fibrous bands are encountered which the finger breaks through with difficulty. We have never had to use, however, any cutting instrument to get the gland away. These bands are found particularly highly developed inferiorly and posteriorly (the recto-vesical fascia) and care must be exercised that not too great traction be used for fear of lacerating or damaging the rectum. The specimens exhibited were removed in this manner.

It is interesting to note that at the Massachusetts General Hospital, in Boston, where the suprapubic operation is uniformly performed, they have been for sometime past sewing up the base of the bladder, the prostatic pocket, with a specially devised needle and needle holder. This takes some little time, probably forty minutes,

but it is claimed by these operators that the results are better than when the wound is left open to granulate, as is commonly adopted. It has been pretty well established by Von Frisch and Tandler that in cases of full or distended bladder the internal sphincter becomes a part of the bladder wall and that the organ is now pear-shaped, with the stem end down at the external sphincter muscle, the prostatic urethra being ballooned out with urine. This is of great significance as it substantiates the claim that after enucleation of the prostate, control and retention of urine is as perfectly carried on as ever, the external cut-off muscle being the one controlling the holding and flow of urine, and not the internal sphincter.

The writer would take this opportunity to discourage the idea of getting these old patients up too soon after operation. The anæsthetic, loss of blood, surgical shock, and sudden relief of the over-congested kidneys, regardless of the pre-operative preparation, demands the horizontal attitude and rest for a week or so after the ordeal. It has been our custom to keep them in bed practically until the suprapubic wound heals, encouraging them in drinking water and, with nutritious diet, we have had no reason to change our after-treatment of this class of cases.

We consider proctoclysis an important adjuvant and call attention to Fischer's solution which we think is more desirable than the normal saline solution. Fischer's solution is composed of sodium carbonate, 10 grams (chemically pure), sodium chloride, 14 grams, distilled filtered water, 1000 c.c. 250 c.c. of this is given every six hours and, as is stated by Fischer, it relieves the colloidal swelling of the cement substance which presses on the tubuli and prevents the escape of urine.

A peculiarly frequent complication following suprapubic prostatectomy is intestinal paresis. This is apparently due to the tissues being chronically water-logged with uro-septic material, which is able to be carried without the lethal state as long as no additional insult is offered to the body. In some instances there is an escape of this poisonous material, absorption goes on, paresis follows, and death is imminent unless this condition is apprehended and treatment vigorously given. Your writer has lost two cases from this complication despite medication and proctoclysis which is particularly indicated here.

In conclusion, particular attention would be called to—

1. Careful and not too hasty preparation of the patient for the operation, from one to several weeks if necessary.

2. The two stage operation in infected cases and in those of loss of cardiac and renal compensation, the cystostomy always being done under local anæsthesia. Your writer has never attempted the removal of the prostate under cocaine or spinal anæsthesia.

3. High vesical incision.

4. Care about the space of Retzius.

5. Intra-urethral enucleation always by choice, the only instances where it cannot be done being in the marked cases of contraction of the neck. The mucous membrane over the most prominent part of the gland is then incised and the removal carried out.

6. No packing of the prostatic cavity.

7. No urethral medication, irrigation or instrumentation.

8. Syphonage by double flow catheter which is kept up two to three days.

9. Proctoclysis.

10. Encourage liquids and food.

11. Allow patient to stay in bed ten days or more.

301 West Grace Street.

THE CLINICAL DIAGNOSIS OF NERVE SYPHILIS.*

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In this day of modern methods, serologic tests for syphilis are almost a routine practice. It is often advisable, however, and even necessary, especially in syphilis of the nervous system, as you have frequently seen illustrated in these clinics, to make a clinical diagnosis as well, and it is to this phase of the subject that I invite your attention today.

In one lecture it is almost impossible to adequately define or assemble in concise form all of the diagnostic features of nerve syphilis, but it is hoped that sufficient data may be given to enable you as general practitioners to recognize the important, and unfortunately not uncommon effects of the treponema invasion upon the nerve structures, and properly diagnose it,

whether it be intra-cranial, spinal or peripheral.

The nervous symptoms themselves are in no wise different when caused by a specific infection from those produced by other causes, but their method of development and their particular grouping, together with the fact that certain areas and localities are especially prone to be affected, are of decided value in aiding us to differentiate them from symptoms of similar affections not due to the virus.

If, of course, we have the actual symptoms of a recent syphilis, it is proof presumptive, if not indeed positive, that the nervous symptoms are due to that cause, but a history of remote syphilis is of less value, and in the absence of marked clinical symptoms of a previous infection, the most interesting of diagnostic problems is furnished as to whether the existing nerve phenomena are a result of past infection, or are the evidences of some disease that may have occurred independently in the course of a chronic affection.

Furthermore, the symptoms of nervous syphilis are almost **co-extensive with the symptoms of all nervous diseases**, and consequently it is very difficult, because of the almost infinite variety of the lesions, to present a clear-cut picture of nerve syphilis, and yet the extreme frequency of the symptoms, as well as the importance of differentiating them as due to specific or non-specific causes, is, or should be, of vital interest to every scientific physician, for only in the early stages before sclerotic changes have occurred, are such affections usually amenable to treatment.

As has been stated in a former lecture, at least ten per cent of all the diseases of the nervous system are due directly or remotely to syphilis, and while any portion of the nervous system may be involved, yet in the majority of cases, the symptoms are either lesions of the intracranial organs, or of the spinal cord. Lesions of the peripheral nerves are rare, syphilitic paralysis of a single nerve having been occasionally noted, but syphilitic polyneuritis has always been a much disputed subject. In all stages of the infection, the nerve structures likewise suffer from the direct effects of the microbic invasion, and recent investigations of Noguchi, Moore and others prove the presence of the specific organisms themselves in the nerve tissues. Fortunately, however, syphilitic affections of the nervous system have certain

*Clinical lecture delivered in the Memorial Hospital Amphitheatre, October 25, 1913.

general characteristics that differentiate them in a way from similar affections not due to the virus, and we will accordingly proceed to consider them as referable to lesions of the intracranial contents, the spinal cord and the peripheral nerve.

Intracranial syphilis may be suspected if there is present, or there is given a history of the following symptoms:

First.—Headache (quasi-periodical) which is present in 75 per cent of the cases, and which has certain definite characteristics, such as a tendency to return at a particular time in the twenty-four hours, usually at night, and less frequently in the morning or afternoon, and generally accompanied by an insomnia which is marked and notably present in the late hours of the night, and followed by more or less depression in the early morning hours.

This headache with its attendant features is almost invariably prodromal to the so-called early secondary stage of the disease, and is regarded as due to hyperaemia or distinct inflammation of the meninges.

Second.—The sudden cessation of such a characteristic headache and insomnia upon the occurrence of paralytic or convulsive symptoms.

These paralyzes or fugacious palsies and fleeting sensory losses of early brain syphilis, with the exception of those of the cranial nerves, are most often due to thrombosis from arteritis, and more rarely to hemorrhage or gumma.

Third.—Lack of definite type in the development of the symptoms of any cerebral disease, whereby an odd mixture of somatic and psychic symptoms may be presented in a given case, such as pain or anaesthesia; spasm or irregular paralysis, or both; together with the sudden appearance or disappearance of one or all.

Fourth.—Symptoms indicative of a lesion at the base of the brain, especially at that anterior portion in which lie the optic chiasm, the crura cerebri, the olfactory nerves and the third pair, whether preceded or not by the characteristic headache and insomnia.

The eye nerves are most frequently affected, and Von Graefe says that over 50 per cent of all eye-muscle paralyzes are syphilitic.

Church says that the almost constant presence of basilar gummy meningitis, with its consequent cranial nerve symptoms, such as ptosis, pupillary abnormalities and optic-nerve

disturbances, is often alone sufficient to guide the diagnosis.

Fifth.—Sudden attacks which appear without apparent cause and are transient in character, ranging from simple vertigo to temporary unconsciousness and convulsions in the adult (epileptoid attacks occurring after the age of thirty, or apoplectic attacks appearing before the age of fifty, singly or in combination), and which have not been preceded by convulsions in infancy, and which are not of traumatic or nephritic origin, or due to pregnancy, or the result of migraine.

Sixth.—Progression of the disease by fits and starts, and caused by the involvement of successive vascular twigs in the brain.

Seventh.—Alternations of somnolence and insomnia, or a peculiar or partial stupor extending over days or weeks, and which is not traumatic, meningitic, diabetic, nephritic, or due to typhoid fever.

Eighth.—Hemiplegia in an adult under forty years of age, even when there has been no preceding headache and insomnia, or no probable sources of emboli from lesions of the heart, lungs or kidneys.

Ninth.—Multiplicity of lesions, showing both brain and cord symptoms in the same patient, or double-sided brain lesions, or lesions of both base and convexity.

Sterility in male or female, and repeated miscarriages are often suggestive of general nerve involvement due to syphilis.

Spinal Syphilis usually affects the membranes of the periphery of the cord, and the clinical symptoms are generally those of a meningitis. The spinal cord is much less liable to be affected than the brain in early syphilis, but if affected, the clinical symptoms beginning with a meningitis, may become a meningo-myelitis, and terminate by focal softening or sclerosis, consuming many years in their development. These symptoms are those of changes due to degeneration of, or pressure on the nerve structures, and while, of course, they vary with the particular part of the cord that is involved, still they present the classical features of palsies or paralyzes, anesthetics, sensory changes, pain, or the signs of tabes or paresis.

Unlike cerebral syphilis, spinal syphilis presents no characteristic premonitory stage, and in clinical features differs but little as far as

individual symptoms are concerned, from similar lesions arising from any other source. The principal symptoms are pains and palsies, the former usually early in manifestation, severe in intensity and nocturnal in character, while the latter are rarely complete, thus combining frequently to make the diagnosis one of the greatest difficulty, unless there is positive knowledge of luetic infection, past or present. Nearly, if not every case, likewise, sooner or later, presents evidences of cerebral invasion, and the final diagnosis often depends on this association.

Syphilis of the peripheral nerves, or Syphilitic Neuritis, is an unusual clinical entity, and a syphilitic polyneuritis is practically unknown. In their clinical manifestations, the specific types of a single syphilitic neuritis are not easily distinguishable from the non-specific forms, and to be exact in diagnosis, a clear history must be available.

In addition to the different forms of Nerve Syphilis already discussed, there may be a *diffuse cerebro-spinal syphilis*, which gives rise to a bewildering mixture of symptoms, the result of the multiform and often complex effects of the virus on the nervous structures, but those are cases more for the neurologist than the general practitioner.

HINTS IN NON-OPERATIVE GYNECOLOGY.*

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In spite of the fact that much has been written along the line of medical gynecology, the consciousness that this field has been more or less neglected has prompted me to select this subject. It is not with the purpose of advancing anything new, but with the hope of collecting a few practical points that may stimulate a further expression from others.

Our opportunities for benefiting pathological conditions of the female genital tract by medical and local treatment rests with an early diagnosis, and decrease in a direct ratio to the length of time this is delayed. The fate of the overlooked or neglected cases is one of two things, namely, chronic suffering and invalidism or a surgical pathology, which too often carries with it the unsexing of the patient. Conservatism, however, is uppermost in the mind of the gynecol-

ogist of to-day, and we are striving to save by plastic work every organ not hopelessly involved.

Since nothing develops our ability as diagnosticians so much as careful history taking, I am going to ask that you bear with me in mentioning a few headings which we should use as a working basis: Age, color, occupation, civil state, habits, menstruation, childbearing record, discharges, pain, bowels and bladder, heredity, previous illnesses, and last, but not least, special symptoms told in the patient's own way, for in this, she often gives us the key to what otherwise might prove an obscure situation. Under each of the above headings much might be said, and while omitting them, I do not underestimate their importance.

The history having been completed, we have had an opportunity to secure the confidence of our patient, and this can be done in such a manner as to convince her that her modesty will command our every respect and consideration in so far as is practicable in keeping with thoroughness.

We have now prepared her for the next statement, to the effect that a vaginal examination is necessary, and just here let me say that we are guilty of a gross neglect of duty when we fail to do this whenever there is the least doubt as to the cause of trouble existing in the pelvis or elsewhere which may emanate from organs therein contained. If conditions in the home are not suitable for a vaginal examination, and in many instances the isolation of the place and the lack of the necessary third party render it out of the question, satisfactory arrangements can usually be made for the next visit; or better still, an office engagement usually can be agreed upon.

Whether a pelvic examination be made at home or in the office, let me urge the use of a table instead of the usual and more convenient bed. It matters not how crude its construction, if it will bear one's weight, it will serve every purpose.

By way of lessening the dangers of infection and rendering this work less disagreeable to the examiner, I wish to commend to you the two finger rubber cot, provided with a liberal apron of the same material. I have found them most convenient both in obstetrical and gynecological work. They are inexpensive, are easily slipped on and off, and answer every purpose where only two fingers are needed. I use soap or KY

*Read before the Southside Virginia Medical Association.

as a lubricant instead of vaseline, for reasons that are too obvious to mention.

It is my custom to make the digital examination first, except in those cases where I have reason to suspect infection when, of course, I wish to obtain a specimen for the microscope. My reason for this is that the patient is usually nervous, and sometimes frightened, and the introduction of the examiner's finger will cause less pain and alarm than the introduction of a speculum and other instruments, which, if used first, often renders the digital work most unsatisfactory from the fear that the worst is yet to come, with the consequent rigid abdominal wall and general muscular resistance. After locating or eliminating any pathological condition so far as is possible with manual and bimanual methods, the next step is inspection, which should not be omitted since a beginning endometritis and endocervicitis may be detected from the appearance of the cervix and the discharge that might otherwise be overlooked. Now we are in a position to make a diagnosis, and not until this is done can we hope to materially benefit the patient. If we omit these steps, failure will usually follow, and if we carry them out carefully, our efforts will surely be rewarded.

We should avoid whenever possible the vaginal route in young girls whose hymen should remain intact. In this class of cases much the same knowledge can be obtained by the rectoabdominal method.

Beginning with puberty, let us consider some of the most important conditions that come to us for local and medical treatment. First,

Amenorrhea.—When the establishment of the menstrual flow is delayed beyond the sixteenth or seventeenth years, we should ascertain whether this is due to the absence or rudimentary condition of the uterus and ovaries, whether there is atresia of the vagina or whether the hymen is without an opening. If the periods have stopped after once having been established, we must determine whether it is physiological or pathological, or whether it is secondary to some constitutional trouble. If due to chlorosis, iron, arsenic and proper hygienic regulations will usually suffice. If physiological, such as that occurring during pregnancy and lactation, we pass it by. If due to debilitating diseases, it is nature's way of conserving the strength of the individual, and

since our efforts are along the same line, we need not consider the amenorrhea. These, as many other types, are secondary, and offer no particularly interesting phase as to treatment.

Dysmenorrhea.—I will not attempt to discuss the numerous types demanding surgical measures, such as amputation of the cervix, the removal of intra-uterine and intra-cervical growths, nor those types due to various forms of endometritis, sclerotic ovaries and various pelvic adhesions since they too must appeal to surgery. Many cases come under our observation which are due to a sharp antelexion with the consequent obstruction to the flow; these are usually due to hypoplasia of the anterior surface of the uterus, and if conception takes place, the resulting development usually affords permanent relief. They are also benefited by dilatation just prior to the periods. Where the cause is obscure and the suffering great, relief is demanded, and here we must avoid the use of opiates. It is generally conceded that the coal tar products are the safest and most reliable at our command, I have found acetanilid in three grain doses, combined with caffeine citrate, grains one, a most valuable remedy. Here viburnum in some of the many palatable elixirs combined with aromatics, which allay the nervous element usually present, serves a good purpose. Tryphenin in three to seven grain doses is preferred by many, and yields excellent results. Should the general pelvic congestion be extreme, cool sitz baths for six to eight minutes are beneficial, while in others passing small clots or slight congestion, hot sitz baths and hot vaginal douches are useful.

Uterine Hemorrhage.—Too much importance cannot be attached to this as a symptom, and if it is abnormal in time and quantity it should demand our serious attention.

Hemorrhagic endometritis resulting from the acute exanthemata, where the endometrium shows small round cell infiltration in proportion to the amount of inflammation, and is greatly congested, causes an excessive flow which usually occurs at the time of the period. In this type, the patient is put to bed at the time of the approaching period, a boroglyceride tampon is inserted, and upon its removal a hot sitz bath containing 3 to 6 pounds of sea salt and 3 to 5 ounces of calcium chloride may be given for ten minutes at the time with great

benefit. Inflammation of the uterine adnexa and cellulitis, acute pyosalpinx, or an old stump exudate, may be the cause of uterine hemorrhage, and in this condition much the same treatment as above outlined should be followed.

Hyperplastic endometritis may also be the cause of excessive bleeding, and along with the excessive thickening of the structures there is an accompanying brittleness of the capillaries which break down and render this form of bleeding hard to control. If it is the result of frequent labors and abortions there is also a change in the fibers of the organ, and owing to the loss of elastic tissue there is feeble contractile power. The friability of the blood vessels is usually seen at the time of the climacteric, although the structural changes are usually due to subinvolution. The uterus may or may not be enlarged, depending upon whether we are dealing with a glandular or an interstitial type. In any event, we should secure scrapings with a curet in order that the pathologist may exclude carcinoma.

We are familiar with menorrhagia in women who have never borne children, which is usually due to simple uterine congestion, and occasionally we see retroflexions causing it. Submucous and intramural fibroids present one of the most frequent sources of uterine hemorrhage. If retroflexion is the cause, there is usually present subinvolution with fibrosis or endometritis or both present. Ergot is our best remedy in the treatment of hemorrhage due to the above, and its efficacy is much increased by the addition of tincture of digitalis, ten minims to the drachm of ergot. Pituitrin on the second day of the period will check the flow when excessive. When the uterus is enlarged, we must at first exclude decidual structures which are easily recognized, and you should also bear in mind the possibility of deciduoma malignum. Three of these cases have come under my observation during the past two years, each of which was the result of improperly treated abortions. Fibroids are a frequent source of enlargement, and the nearer these growths are to the endometrium, the greater the amount of bleeding, which usually occurs at the time of the period, though it may take place during the interim. The treatment is surgical. When intermenstrual bleeding occurs, abortion and ectopic gestation should be excluded. Having done this, we may safely assume some

permanent structural changes. Malignant disease by no means shows enlargement in its early stages. If it is due to ectopic we have the expulsion of the decidua after the fourth week. Harris states that if a woman after puberty and before menopause, who has menstruated regularly and painlessly, goes four, five, six, eight, ten and fifteen to eighteen days over the usual time at which menstruation should occur, and see blood from the vagina differing in quality, quantity, color and continuance from her usual menstrual flow, and has pains, usually severe in one side of the pelvis or the other, or, possibly, in the hypogastrium, ectopic gestation may be presumed.

Question the patient as to her habits of cohabitation as frequent coitus will cause an oozing in carcinoma. A fresh gushing flow indicates an open vessel, and is found in abortion, malignant conditions and polyps. The presence of clots indicates that the amount was too great for the secretions of the uterus to prevent the clotting, and is seen in fibroids, carcinoma, polyps and abortions. About sixty-five per cent of bleedings occurring at or near the menopause are due to carcinoma; hence, the great importance of securing specimens for the pathologist under these conditions. In all forms of hemorrhage from the uterus ergot is given with good effect, and I usually prescribe Squibb's fluid extract and combine with it either digitalis or hydrastis. The latter drug has a stimulating trophic effect on the uterine muscle. Stypticin is preferred by many, and adrenalin serves a good purpose in some cases. If the case is due to retroflexion replace the uterus, and retain its position with pessaries or non-absorbent cotton tampons covered with dry boric acid; when this is done the patient had best be placed in the knee-chest position. If this treatment relieves the symptom, but the organ returns to its malposition when the supportive treatment is abandoned, it may necessitate one of the many operations for suspension or fixation, according to the demands of the case. The hot water bag applied to the spine is a most valuable means of treating uterine hemorrhage, as are very hot vaginal douches for a few minutes at a time. Topical applications of many of the astringents may be used, I have found tincture of iodine superior to those I have tried. When these measures fail, the curet is about the only thing that will put an end to the trouble. If the loss of blood

is rapid, it may be necessary to pack the uterus and vagina, which should be done with small strips of sterile gauze. Bleeding at the time of the menopause is best treated with ergot and digitalis internally combined with hot sitz baths, hot douches and heat applied to the spine. The injections of fresh blood serum from animals or human beings have not yielded the best results, though it is claimed that it increases the coagulability of the blood. I will not go into the treatment of abortions except to state that I am convinced that we cannot underestimate the importance of complete and thorough removal of the secundines. So great are the dangers lurking in an imperfectly emptied uterus that I feel like making the assertion that in all cases wherein there is the least doubt, thorough dilatation and a complete search with the finger or dull curet should be made, and the remaining particles removed. If there is any foul odor present, after thoroughly drying the uterus with cotton or gauze, it should be swabbed out with pure tincture of iodine. If this rule is followed, I am convinced that the number of pathological conditions in the pelvis would be greatly diminished.

Leukorrhea.—You are familiar with the fact that the normal secretion from the vagina is of a serous milky character and contains numerous bacteria and cast off squamous epithelial cells, and that it is rendered acid by the bacillus of Doderlin, which likewise is responsible for the fact that pathogenic bacteria are not found in the normal vagina, though they exist in abundance on the vulva. We must also remember that any increase in the uterine flow has a tendency from its alkaline reaction to lessen the acidity of the vaginal secretion, and facilitates the entrance of pathogenic germs, and furnishes conditions favorable for the upward extension of infection. It is not unusual to see a mild vaginitis accompanied by hypersecretion in obese patients in hot weather; this, however, is usually relieved by simple astringent douches. Gonorrheal vaginitis in most cases is secondary to a vulvitis of the same infection or a similar condition in the uterus or cervix which pours out a germ-laden secretion over the posterior vaginal fornix where it makes its chief attack. Every leukorrheal discharge should be carefully examined to determine the character of the bacteria present. A greenish yellow discharge from the vaginal wall is almost certain to be

gonorrheal. The tenacious viscid mucous resembling the white of an egg, coming from the cervix, is normal, but maybe increased by pathological conditions involving this portion of the organ, which, if extensive, may change to white, yellow or green, and in this case, it is often difficult to determine whether it is coming from the uterus or cervix.

Uterine leukorrhea is a serous, sero-purulent secretion, containing polynuclear leukocytes or pus cells, and is either due to gonorrhea or some form of metritis or endometritis. On the other hand, we know that marked inflammatory changes may be in progress with no excessive secretion from the uterus. In women who have passed the menopause, there is sometimes seen a sero-purulent discharge due to senile changes, and should it develop a disagreeable odor, carcinoma should be suspected, though fibroids or tuberculosis may be the offending cause. By no means should we wait for the offensive odor in eliminating carcinoma; if we do, usually the case will be found inoperable. Any discharge appearing after the menopause, coming from the vagina, cervix or uterus should demand a careful investigation. The curet and microscope will settle the diagnosis.

Vulvitis should be treated by shaving the parts, the use of hot sitz baths, bathing with soap and water, and local applications of fifty per cent argyrol applied and held in place by a "T" bandage. If gonorrheal, in addition to the above, bichloride douches 1:2000 should be used several times a day. In the latter case, the patient should be kept in bed, and an application of a ten per cent solution of silver nitrate applied every third day. In the treatment of gonorrheal vaginitis I have used with good effect, permanganate of potash 1:1000 followed by packing the vagina loosely with plain gauze or saturating it first with a solution of twenty-five per cent argyrol, which should not remain longer than 12 hours. In the senile form, Harris strongly advises the use of pyroligenous acid, the parts to be painted thoroughly once a day. Chronic vaginitis is best treated by first cleansing the vagina with a one per cent solution of bichloride, and then dried and dusted with boric acid and alum, equal parts. Ferguson advises the use of pyroligenous acid or tincture of iodine, or carbolic acid and iodine, equal parts, followed by alcohol to neutralize the carbolic, and then a boroglyceride tampon

is inserted, to be removed in twelve or twenty-four hours, after which is given a bichloride douche. The iodine application should be made every third day.

Acute gonorrheal endometritis is treated by rest in bed, local applications of a fifty per cent argvrol solution, or a five per cent solution of silver nitrate, or ichthyol, and hot bichloride vaginal douches, strength 1:2000.

In simple catarrhal endometritis irrigate with two per cent carbolic, or 1:2500 bichloride, hot vaginal douches, after which follow by boroglyceride vaginal tampons; if improvement is not forthcoming, examine carefully for gonorrheal infection.

Treatment of Pelvic Pain.—During acute conditions, patient should be absolutely at rest in bed; cold applications to the abdomen, saline purgation, cold rectal irrigation, and cleansing vaginal douches should be used. Should these measures fail to give more than temporary relief, it is clear that we have a pus cavity to deal with, and if the leukocytosis is 15000 or over, with accompanying pain, the sac should be looked for by palpation and drained per vaginam. Suitable anodynes should be given in addition to the above.

In chronic diseases of the parametria, use stimulating applications to the abdomen, hot vaginal douches, hot sitz baths, and boroglyceride tampons, coupled with gentle massage of the local area once a day. The patient should be cautioned to remain in bed just prior to and during the menstrual period. I have used the dry non-absorbent cotton tampons covered with boric acid with good results in these cases instead of the boroglyceride.

Constipation.—Few women come under our observation who do not offer this as one of their many troubles, and while we know that atrophy of the muscularis, adhesions and displacements of the uterus and colon constitute the chief pathological conditions from which this results, yet, we are equally aware of the fact that there are many contributing factors which are often overlooked, and are very hard to overcome. Among them may be mentioned, sedentary habits, improper dress, a fatal stumbling block to the physician who tries to correct it, improper diet, irregular habits, reading while at stool, and insufficient amount of water consumed, together with a long list of others which I might mention if time permitted. The evils resulting

from constipation, if any thing, exceed in number the causes which produce it. Peritonitis, adhesions and infections involving the uterine adnexa, resulting directly from an old proctitis, sigmoiditis or colitis with extensive ulcerations, are often overlooked, and constitute a not unusual etiological factor in pelvic disease. The treatment of these cases is often difficult and unsatisfactory. They rebel at any suggestion of change in dress or habits, and carry out other instructions with little regard to detail or system. This affords us the excuse to write a prescription for one or a combination of the many purgatives, and dismiss the case from our minds, only to have her return in a short while with the familiar reply to our salutation, "No better."

The following are a few practical suggestions that have proven a help to me:—If lack of exercise is a cause, insist that she stretch out full length upon the floor and rise to the sitting posture and back; this to be done slowly for fifteen minutes night and morning. Abdominal massage, when the patient can afford it. I have found the use of a five pound iron ball covered with soft cloth and rolled around the abdomen from right to left for fifteen minutes once or twice a day, as indicated, a most ready source of relief in very obstinate cases. If they are not drinking sufficient water, assure them that this will not increase their avoirdupois as is commonly believed, but will tend to reduce it, and it is surprising the quantities they will learn to consume. Select food that will stimulate peristalsis, and above all things, cultivate the habit of going to stool at a certain time.

Cystitis.—It is true that the cardinal symptoms of cystitis, namely, pain, frequent micturition and pus in the urine are usually sufficient to confirm a diagnosis, but we should not stop here. Whenever it is possible, a cystoscopic examination should be made. This will often reveal trouble which otherwise would have been overlooked, and the treatment greatly facilitated. This precaution is especially valuable in the detection of tumors of the bladder, malignant growths, ulcers, etc. Palpate the bladder and urethra to determine the extent of induration that may be present, and measure its capacity which may have been greatly diminished as a result of an increase in its fibrous tissue. There are many varieties and classifications which I shall omit, and glance briefly at the treatment as a whole.

As to treatment, rest in bed is essential; irrigations with antiseptic solutions is equally so, and among the best may be mentioned boric acid, one drachm to the quart of warm water; normal salt solution, permanganate of potash, two grains to the quart, and many others are extensively used. In addition to the irrigation, urinary antiseptics should be given, among which may be mentioned urotropin in 5 grain doses, helmitol in 15 grain doses, and saliformin in 5 grain doses. I have found the following most satisfactory—Urotropin, drachms ij; sodium bromide and tincture hyoscyamus, of each drachms iv; aquae q.s. ad \mathfrak{z} iv. M.-Sig. One teaspoonful in water every four hours. This not only lessens the amount of pus in the urine, but allays the suffering and nervous irritability to a great extent. If the urine is alkaline, we give sodium benzoate in 10 grain doses three times a day until the reaction is acid. We are aware of the fact that many cases of frequent micturition and irritability are not accompanied with pus in the urine, and are secondary to one of the following conditions: congestion of the trigone, resulting from an antiflexed uterus, tumors and adhesions; ulcers or fissures around the trigone, malignant growths, urethritis and prolapsed urethra, and in these cases irrigation should not be attempted. The symptoms are sometimes most obstinate, and seem to persist after the cause is removed, and when this is true, I am convinced that the neurotic feature is so thoroughly developed that it entails as much suffering to the patient as if there were some pathological lesion present. In these cases, the above prescription yields excellent results.

In the local treatment of the cases that come under our observation we should be diligent in our search for cancer foci, and it is interesting to note the frequency with which the cervix is attacked. It is not because this portion of the uterus is more vulnerable, anatomically and histologically, and this is clearly proven by the rare occurrence of cancer in the nullipara. Now then, we are brought face to face with the fact that the injuries incident to childbirth make for them the fertile soil, along with so many other serious consequences. It is not the clean wound affording this soil, but the slowly granulating, sloughing tear, burying in its cicatrix nests of epithelia which are directly responsible for the future development of malignancy. For

this reason we should see that every laceration of the cervix receives the proper attention.

All cases should be examined on the tenth day, when practicable, and should a slight tear present an unhealthy appearance, or the recent repair has not held, the work should be done over again at once. It is equally important that old tears coming under our observation should be repaired.

A most interesting phase in our work in gynecology is the psychic side, and I regret that the length of this paper does not permit me to take up the neurotic conditions incident to puberty, marriage and the menopause.

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TYPHOID SPINE.*

By E. E. FEILD, M. D., Norfolk, Va.

In 1889, Gibney described a condition of the spine following typhoid fever, characterized by pain, tenderness, local redness and nervous manifestations as "typhoid spine." Following this, a number of other observers have reported cases—principally in America and Germany—until there are about sixty cases on record, according to Tubby, of Westminster Hospital, London.

Doubtless this represents a small portion of the cases that have occurred since Gibney's report, as the typhoid bacillus lives a long time in bone—seven years according to some observers—and has a strong predilection for the vertebrae, the ribs and the tibiae. Tubby's description of the symptoms of the disease and its pathology is so very clear that I shall take the liberty of quoting freely from it. He says in his recent work on "Deformities," which included diseases of the bones and joints, "The most constant symptom is pain in the back coming on during the course of typhoid fever, or, as is much more frequently the case, commencing during convalescence. In several patients the onset has been preceded by resumption of the occupation, involving heavy manual labor, a sequence suggesting the influence of traumatism. The pain may be spontaneous in a recumbent patient, and become exaggerated and often very intense on movement; or it may be evoked by movements only and be quiescent during the intervals.

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"In the great majority of cases the painful segment is lumbar, lumbo-dorsal, or lumbo-sacral. This is probably because the lumbar portion of the spine is more vulnerable to strain, and is subjected to greater pressure during convalescence than the regions higher up.

"Silver has suggested as additional reasons for this, the greater amount of cancellous tissue, that is, of suitable nidus for the typhoid bacilli in this locality, and the possibility of direct infection from the lumbar lymphatic glands. The pain may be constant or paroxysmal. It may be localized or radiating, or referred to the abdomen, lower limbs or testicles. Under certain circumstances, it may be of such a character as to suggest the possibility of perforation having taken place.

"Locally, tenderness, swelling, and, very occasionally, redness may be present; actual supuration is excessively rare. The temperature is raised, generally from 100 to 103 degrees, early in the attack; and it falls to normal in from one to four weeks, long before the pain, stiffness, and disability disappear.

"Spinal symptoms, such as paræsthesias, anæsthesia, hyperæsthesia, spasmodic contractions, and alterations of the knee-jerks, usually increased, may be present or the neurotic element may be prominent, as in Olser's cases. Root symptoms, however, are only of a temporary character, and fortunately so, since even ataxia and loss of control over the sphincters have been noted.

"The deformities observed have been kyphosis, scoliosis, and local swelling and thickening. Myers states that kyphosis was present in 20 of 56 cases, or in about 36 per cent. It is usually slight, and the upper lumbar region the part affected. Whether it subsequently recedes is a doubtful point, for Silver points out that apparent disappearance may simply mean that a slight prominence is masked by increasing flesh.

"The duration of the subacute stage is considerable, and runs into several weeks or months. Complete cure, save for the deformity, and perhaps some stiffness, is the rule, and takes on an average about eight months—varying from a month to a year or so.

"The symptoms and local signs point to an osteomyelitis, with a varying amount of periostitis, perichondritis, and œdema invading neighboring parts. No clinical case of typhoid

spine itself has as yet come to autopsy, followed by microscopic and cultural examination of the parts; but the condition of the bone marrow, especially that of the spine, has been studied in typhoid cases, especially by Quinke, and more recently by Frænkel. The presence of typhoid bacilli in the vertebral bodies (as well as in ribs, sternum and elsewhere) has been abundantly demonstrated. Naturally their numbers, distribution and virulence vary, and correspondingly the microscopical signs due to reaction of the invaded tissue.

"The more or less increase of the leucocytes, giant cells, presence of blood extravasations, and a net work of fine fibrin filaments enclosing necrosed cells and debris may be observed. That is to say, the typhoid patient must often be on the verge of a spondylitis, and a little strain or trauma alone is needed to turn the scale.

"As to the method of the production of kyphosis, Wullstein is of opinion that it is due to grouping of the bacteria towards the anterior portion of the bodies, with subsequent absorption of bone and development of deformity. As often as not, kyphosis appears much too early, acutely and rapidly, to be explained thus, and the study of radiograms of these cases suggests that it is rather the result of periostitic changes, with softening of ligaments and disorganization of one or more intervertebral discs. What is actually observed is disappearance, more or less complete, of intervertebral disc, with approximation and synostosis of the vertebral bodies above and below it. And, as our studies elsewhere show, solution and disappearance of the discs, especially in a normally lordotic region of the spine, leads to kyphosis. In this particular case the prolonged recumbency, muscular wasting, and ligamentous relaxation of typhoid fever are all in favor of obliteration of the lumbar lordosis. In fact, a perispondylitis, with œdematous softening of the spinal ligaments and disorganization of the discs, is sufficient to account for the local signs."

McRea (*Amer. Jour. Med. Sciences*, 1906, page 878) reports two cases of typhoid spine, one, however, in which the infection was with the para-typhoid bacillus. He believed that the lesion is a spondylitis with involvement of the lateral ligaments, and a deposit of the bony salts in the tissues. In both of McRea's cases, Baetjer demonstrated with the X-ray the presence of

bone salts in the lateral ligaments and the intervertebral discs.

The following case came under my observation: H. H., British sailor, white, age forty-two, was admitted to St. Vincent's Hospital about the beginning of the third week. Pulse dicrotic, Widal positive, rose spots present in small numbers, constipation, typical curve, becoming normal on twenty-eighth day. One week later, had a chill, with temperature of 104, yielding to quinine. Patient was convalescing very satisfactorily and walking about the ward four weeks later, when he was taken with a severe pain in left side of chest, and a slight rise of temperature. Although there were no physical signs, this was diagnosed as diaphragmatic pleurisy, and the pain partially relieved by strapping the chest with Z. O. plaster. In four or five days the pain recurred on the right side, and was similarly treated, but without great success. Patient then took to his bed, suffering considerable pain, which was greatly aggravated by any attempt at moving him. There were distinct gastric crises, closely simulating those of tabes, great abdominal distention, nausea, vomiting, with constipation, and paralysis of the bladder, requiring the use of the catheter for several days. The reflexes were normal. There was also a sensation as if the patient had on a tight girdle; exaggerated ankle clonus; no tremor of hands. Pupils responded perfectly to light. No Argyle-Robertson pupil. There was a great tenderness over the lumbar and dorsal spine, as well as a short distance on either side. The patient's walk resembled the gait of multiple neuritis, rather than that of tabes. The abdomen was also tender. The urine was normal, and showed no kidney involvement. At no time was he delirious, nor were there any mental symptoms. His back was strapped with Z. O. plaster, which gave him great comfort, and he left the hospital about four weeks from the commencement of his second attack, convalescent.

I have reported this as a case of "typhoid spine," as it agrees in history and symptoms with those cases in literature to which I have had access. I neglected to state that, at the patient's request, I gave him a dose of salvarsan, thinking it might have some effect in clearing up the diagnosis, as he had a chancre a few years before. It seemed, however, to have no effect on the trouble.

Typhoid spine appears more often during convalescence, and three-fourths of the cases reported have been among males. Among the cases reported, I have only found one other in which the "girdle sensation" was mentioned.

The deposit of bone salts in the tissues is interesting, in view of the possibility of stiffness of the spine following the disease, as we sometimes see in fractures of the vertebrae of Potts' disease.

PHLEBITIS FOLLOWING PNEUMONIA.*

By M. L. DALTON, M. D., Floyd, Va.

On Saturday, February 1, 1913, I was called to see Miss L. R., aged 20 years. On examination, I received the following history: Patient had good health all her life with the exception of the past two years; during this period she has had some irregularities of menstruation, which has been rather scant; she has also had anemia. Under treatment, patient improved and is now looking rather robust and plethoric.

Patient had had some prodromal symptoms on Wednesday previous,—had a chill Wednesday night, followed by cough and expectoration of bloody mucus, and development of the usual symptoms found in typical lobar pneumonia. On examination, I found temperature 102 3-5, pulse 120, with consolidation of lower lobe of right lung. My usual treatment for lobar pneumonia was prescribed and I departed thinking I had a moderately mild case of pneumonia to deal with. Next day symptoms were reported to be about the same. On the following day I returned and patient was reported by the nurse as having been more restless during the night and not so well. I found temperature 104 2-5, pulse, 130, and consolidation of lower lobe of left lung. Patient had from then on a severe case of double pneumonia.

The crisis came and resolution set in for the right lung on February 7th, and temperature dropped to 101 1-2 F. This was followed on February 10th by resolution in the left lung and temperature dropped to normal on the 11th. Patient was having an uneventful recovery and was sitting up some in bed when, on February 18th, phlebitis set up in the left leg, which became swollen to an enormous size. I diagnosed phlebitis of the femoral vein. While I recognize the fact that phlebitis may follow any in-

*Read before the forty-fourth annual meeting of the Medical Society of Virginia, at Lynchburg, October 21-24, 1913.

fectious disease, having seen it as a sequela of typhoid fever, and the infections of child birth (though in the latter, I am glad to say it is not so common as it once was), it may also follow some surgical operations, etc.

I once had a case following an attack of appendicitis that was not operated on. This case being unusual to me, having never heard of a similar condition following this disease, I made inquiry amongst my confreres, but none had ever heard of it in such connection. I then searched all the authorities I had access to, and found that Tyson did not mention the complication, neither did Osler nor any of the smaller works on practice; however, Sajous reported nine cases, three of the femoral and six of the saphenous vein. As it seemed to be rather an infrequent complication, to say the least, I decided to report the case to this meeting, and if any fellow has had a like case, I, for one, would like to hear from him. The patient, a young lady, was treated on the usual lines,—rest, elevation of the limb, etc., and made an uneventful recovery, there being no untoward after-effects.

Another case, recently occurring in my practice, I wish to report, was a case of sciatica, the treatment of which was original with me. I have never noticed a report of any case treated as this one was, although it may not be new to others.

Mr. N. S., barber, white, age 50 years, came to me suffering with a severe case of sciatica. Knowing that this patient was suffering from chronic alcoholism and a morphine fiend, I was puzzled as to what was best to do, as I had used morphine in increasing doses without relief. I decided to try injecting quinine urea hydrochloride in the nerve, which I did, using a one per cent solution near the exit of the nerve from the foramina. Using about 100 minims along its course in three different places, at exit, lower part of middle third of thigh, and below popliteal space, this was followed in a few minutes by complete relief of pain, nothing being complained of except a sensation of numbness in the region of the exit of the nerve. This was given on Friday and no pain was complained of until the following Saturday a week—eight days—when it returned. This treatment was repeated, with the same happy results, and there being no return of pain, the case is now considered cured.

Analyses, Selections, Etc.

Surgical Repair of Blood-Vessels; Its Technic, Its Uses and Limitations.

During the meeting of the Southern Surgical and Gynecological Association at Atlanta, December 16-18, 1913, Dr. J. Shelton Horsley read a paper on the above subject, in which he claimed that sensational newspaper articles had done blood-vessel surgery much harm. Even in animals no organs such as the kidney and no limbs have been transplanted with permanent success. A transplanted limb continues paralyzed and useless, and while a transplanted kidney may functionate for a while it gradually loses its structure. However, blood-vessel surgery has four fruitful fields: (1) Trauma of the vessels. (2) Malignant growths that involve the blood-vessels. (3) Aneurysms. (4) Transfusion of blood.

In suturing vessels, the author claims the same principle of approximating endothelium obtains, as in suturing intestines—only the endothelium is on the *inside* of the vessel while on the *outside* of the bowel. So in suturing vessels a flange must be turned *out*, just as in suturing intestines it must be turned *in*.

He describes his technic for vessel suturing. Three guy sutures are inserted and attached to buttons on an arterial suture staff of his design. The threaded ends of the last two guy sutures are not cut but used as a double mattress, or cobbler's stitch. The suture staff converts the circumference of the vessel into a triangle and the vessel is held so that the intima is everted in the third that is being sutured. All stitches are placed under the same tension instead of under varying tension, as when the sutures are held by hand, and a flange with everted intima is turned out, the intima being accurately approximated by the cobbler's stitch. (*Author's Abstract.*)

Hypertrophied Prostate.

After discussing etiology, symptomatology and pathological anatomy, and the various treatments used in former years, Jeukel gives a lengthy report on the suprapubic prostatectomy which he has performed in thirty-six cases.

The operation is done under local anesthesia, using a 1 per cent. novocain-suprarenin solution. The bladder is filled with a 2 per cent.

boracic acid solution. The abdominal wall is anesthetized within reach of the incision, then the bladder is opened with a small incision, the prostate pushed upwards from the rectum with a prostatic elevator, and the region around the prostate also infiltrated with novocain-suprarenin. After the dissection of the mucous membrane by means of a metallic fingernail, the enucleation is performed in the well-known manner. In case of great bleeding suprarenin tampons are used, and if the bleeding has stopped, the bladder is then sutured and a permanent catheter introduced.—(*Muench. Med. Woch.*, July 8, 1913.)

Another Word as to the Massacre of the Tonsil.

Readers of the *Therapeutic Gazette* will remember that about a year ago we published a leading article in which we quoted largely from a very able contribution made by Dr. J. Noland Mackenzie of Baltimore which bore the somewhat startling title, "The Massacre of the Tonsil." In that article Dr. Mackenzie strongly condemned the almost universal resort to tonsillectomy and pointed out that not infrequently it was not only a useless, but a harmful operative procedure.

That there are cases in which operative measures are necessary because of tonsillar disease no medical practitioner, whether he be in general practice or a specialist, will for a moment deny, but that there has been a massacre of the tonsil in the past, if not at present, seems to be more generally recognized every day. The error in the past has been due in part to an erroneous conception of what a diseased tonsil is, in part due to the idea that tonsillectomy is a minor operation, and in part due to the ignorance of the fact that the lymphoid tissue of both the pharyngeal and postnasal tissues probably has a distinct function to perform.

For these reasons we welcome the appearance of an article upon the removal of adenoids and tonsils in children by Coolidge and Garland which is published in the *Boston Medical and Surgical Journal* of August 28, 1913. They assert that tonsillectomy should be looked upon as a serious operation and not one to be entered into unadvisedly or lightly, but reverently, discreetly, advisedly, and soberly. They point out that complications may occur in tonsillectomy and that convalescence may be very slow, and

again, while admitting that the function of the tonsillar ring is not known, they believe nevertheless that it does possess some power, possibly protective, and that until we know more about it our treatment of this tissue should be less meddlesome.

Coolidge and Garland also show that the great majority of normal children have more adenoid tissue and larger faucial tonsils than appears to be generally supposed, and again they point out that the pharyngeal tonsil is a normal structure and that it should not be meddled with unless it obstructs nasal breathing. They strongly condemn the method by which this tissue is examined by the introduction of a finger into the vault of the pharynx, and ask that any one who is tempted to do this should first try it on himself. They go so far as to assert that if the adenoids are to be removed the diagnosis of the disease of the tonsils should be left until the child is under ether, and again they assert that while it is better to remove the adenoids whenever the tonsils are removed, the tonsils should not be removed as a part of an adenoid operation because disease of the tonsil requiring operation is usually associated with diseases of the adenoids, whereas the reverse is not true.

One of the important points emphasized by these authors is that projecting tonsils are not in themselves abnormal, nor do they increase the danger to the child if it suffers from scarlet fever or some other infection, and they claim that tonsillectomy is not justifiable simply because the tonsils project in front of the pillars, nor because they look ragged, nor for occasional sore throat, nor because they contain plugs, nor because the patient is under ether for adenoids or for any remote symptoms not of a serious nature, nor to protect the child from indefinite infection, nor for an occasional attack of acute simple tonsillitis. They insist that the so-called ragged tonsil is not necessarily abnormal, that acute tonsillitis may be the result of a general condition rather than a local one, and repeat that the presence of cheesy material in the crypts is too common by itself to be pathological.

It must not be thought that these authors are so opposed to the operative treatment of tonsillar disease that they forbid it generally. On the contrary, they lay down the following excellent rules, which they believe should be followed in practically all cases:

"Tonsils should be removed if serious symptoms can be logically attributed to them. The more serious the symptoms and the more direct the connection, the more imperative is the operation.

"They should be removed from recurring peritonsillar abscess.

"They should be removed from recurring and persistent cervical adenitis that cannot be accounted for by a focus in the teeth, vestibule, scalp, nose, nasopharynx, or ears.

"They should be removed for recurring sub-acute tonsillitis. This does not include those acute infections of the mucous membrane of the upper respiratory tract so often accompanied by sore throat, which do not start in and only incidentally involve the tonsillar ring.

"They should be removed if it is believed or even seriously suspected that they are the entering point of constitutional infection. While few dispute this, its practical application in individual cases must be often influenced by different opinions. The tonsils are only one of several avenues through which infection may enter. As it is often the easiest one to close, an experimental operation in serious cases may be justifiable. It is perhaps better to sacrifice many innocent tonsils than to allow one guilty one to escape, but it is also true that every unnecessary operation does a little harm to medical science. It is unfortunate that we can never be sure by its appearance that a tonsil is innocent, and not very often that it is guilty.

"Very large tonsils should be removed, as experience proves that persons are better off without them. But we have found that in children the number of cases in which the tonsils are markedly larger than normal and need removal on that account is small. In our series there were thirteen such cases with an average weight of fifty-one grains.

"Tonsils which are wholly exposed may be obstructive and require removal on that account, irrespective of size."

This very same summarization of an important topic is, we believe, worthy of the attention of the profession, particularly at this time when the general practitioner and the medical school inspector seem to be imbued with the idea that many of the ills of childhood can be corrected by referring the patient to the nose and throat specialist.—(*Editorial, Therapeutic Gazette, December, 1913.*)

Difficulties in Diagnosis of Gallstones.

To reduce diagnostic errors to a minimum Dr. F. E. Bunts (*Cleveland Med. Jour.*) advises as follows: 1. One must have a clear picture of gallstone attacks. 2. Never accept a diagnosis of acute indigestion as satisfactory unless the possibility of gallbladder disease has been considered and definitely eliminated. 3. The resort to the use of the X-ray by an expert where there is a reasonable doubt as to the existence of renal or ureteral calculi. 4. Always consider with the greatest care and minutest scrutiny the history of each previous attack when the question of appendicitis is raised, paying particular attention to the time and apparent cause of the attacks, duration, degree of fever, presence of jaundice (of slight value), location of pain, location of rigidity, and, after the subsidence of the acute pain, the location and persistence of tenderness. In connection with the history of pain it is interesting to note how many times repeated hypodermics of morphine have been found necessary in gallstone attacks and how seldom they have been given, or at most, repeated in appendiceal attacks. 5. Carcinoma of the liver is nearly always a secondary growth and may or may not be associated with gallbladder disease. When it occurs at the cystic end, there is continuously increasing involvement of the common duct, causing progressive jaundice. It must be remembered, however, that the early appearing jaundice accompanying carcinoma of the gallbladder or ducts may be instrumental in causing a catarrhal jaundice which will clear up temporarily or to a limited extent under appropriate medical treatment, thus obscuring for a time the real gravity of the case, but in any considerable carcinomatous involvement of the common duct the jaundice is permanent and progressive.—(*International Journ. of Surgery, New York.*)

Significance of Fecundity.

It is now generally admitted that those of feeble mentality reproduce their kind more rapidly than do most of normal individuals. The Rooseveltian virtue of large families, looked at from this standpoint, seems to have its disadvantages. In this connection the *Medical Review of Reviews* cites the case of a senile neurasthenic woman of fifty-seven, whose neighbors in Nocera, Italy, have petitioned that

she be granted a pension. This woman, we learn, has borne sixty-three children, of whom fifty-nine are boys and four girls. In the first nine years she bore eleven triplets. She has thrice had quadruplets, and once sextuplets. She has had twelve single pregnancies, but has never borne twins. "From the ordinary conception, maternity like this deserves reward," remarks the *Review*. "From the standpoint of biology, however, such fecundity seems a reverse in evolution to status of the codfish with its million young. Biology teaches the lesson that advance depends on the subordination of the reproductive powers to the benefit of the individuals."—(*The Medical Standard*, Chicago.)

Treatment of Acute Phlebitis.

Joly, in *La Clinique* for March 14, 1913, asserts that the application of ice yields good results, especially in the presence of periphlebitis, in inflammation of the venous walls already thickened through chronic disease, and in varicose phlebitis. Its efficacy is the greater, the earlier it can be brought into use after the onset of the acute inflammation; it may even abort the latter. As a receptacle for the ice the author uses a piece of rubber inner tube from a bicycle tire, sealed at one extremity and closed at the other with a large cork. This is placed along the course of the inflamed vein, undue pressure being avoided by suspending it from the hoops supporting the bedclothes, and immediate contact prevented by interposition of dry flannel. The rest of the extremity should be completely covered with cotton wool. Indications as to how long the ice should be allowed to remain are furnished by the effects of its temporary removal, viz., it should be re-applied whenever a painful reaction is observed to result from its withdrawal. When the local disturbance shows signs of recession, it may be left on only in the daytime, then only for a few hours several times in the course of the day.

Rectal irrigation with boiled water, cooled to 25° or 20° C. (77 or 68 degrees Fahrenheit), and with the container but slightly elevated, is also recommended by the author in these cases. The blood pressure should, however, be kept under watch. If it rises considerably, tepid or hot irrigations—30° to 40° C. (86 to 104 degrees Fahrenheit)—should be substituted for the cold.—(*New York Med. Journ.*)

Emetine in Hemoptysis.

Striking results are reported by the author (Flandin, *Presse Medicale*) for subcutaneous injection in the flank or thigh of 0.04 gram (2-3 grain) of emetine hydrochloride dissolved in 1 c.c. (16 minims) of water. In twenty cases of hemoptysis thus treated the bleeding was constantly and immediately arrested. No unfavorable accompanying effect was observed, with the exception of temporary local pain in the most sensitive individuals treated. In the more severe cases bleeding may recur some time after the first injection, and the author therefore now repeats the measure in twelve hours, again the next day, and, if necessary, on the fourth and fifth days. In some cases the emetine acted so thoroughly that soon after the injection there was no longer a trace of blood in the sputum. In only one case, and that of galloping tuberculosis, did the drug not produce permanent arrest of the bleeding. The *modus operandi* is obscure, the blood-pressure, coagulability and cell counts remaining uninfluenced.—(*Monthly Cyclopaedia and Med. Bul.*, Philadelphia.)

Occupational Neuroses.

Tom A. Williams, Washington, D. C., in an article on the *Occupation Neuroses*, says that a nervous breakdown supposed to be due to one's work, is traceable very often to mental predispositions which have nothing to do with the work at all. Therefore, compensation for industrial nervous diseases, including sinistrosis, should only be made after a due appreciation of the individual's mental make up.

For example, a woman who had to count money in the United States Treasury ceased to be able to do so, and felt very nervous about it because her head kept turning to the right in spite of herself. Psychological examination showed that her "Neurosis" was caused by the presence of a woman with whom she had quarrelled, behind her and to the right.

A naval paymaster lost his power of signing checks. It was discovered that this arose from fear of their refusal. He was quickly cured.

A conductor of a freight train after an accident remained so nervous that he would not resume work. Examination showed that his work was distasteful and he had feared it long before the accident.

Suicide and fugue may depend less upon business troubles than upon a personal cause ascertainable only by skilful psychic exploration.—(*Author's Abstract.*)

Book Announcements and Reviews

The Semi-Monthly will be glad to receive new publications for acknowledgment in these columns, though it recognizes no obligation to review them all. As space permits, we will aim to review those publications which would seem to require more than passing notice.

A Practical Treatise on the Causes, Symptoms, and Treatment of Sexual Impotence and Other Sexual Disorders in Men and Women. By WILLIAM J. ROBINSON, M. D., Chief of the Department of Genitourinary Diseases and Dermatology, Bronx Hospital and Dispensary; Editor The American Journal of Urology, Venereal and Sexual Diseases; Editor and Founder of the Critic and Guide; Author of Sexual Problems of To-day; President of the American Society of Medical Sociology, of the Northern Medical Society, etc., etc. 1913. Critic and Guide Company, 12 Mt. Morris Park, New York. 421 pages. Cloth. Price, \$3.00.

There is a certain force in everything that Dr. Robinson writes that appeals to one whether or not he accepts the opinions expressed. The present volume is no exception. The author speaks in plain, every-day language, with no trace of didacticism, from a rich experience. He takes no man's *ipse dixit* unless that "say-so" has been proved.

In the book before us there is no space wasted on those things that are fully described elsewhere, viz., anatomy, physiology and pathology of the parts under discussion—into the midst of things one is plunged; and when the reader has completed the volume he is struck with the minuteness, the detail, the wealth of knowledge spread before him, and, withal, the simple phraseology, the common-sense of the author and his uncommon power of placing before one facts, facts and yet more facts. He tears away the veil of mystery, sheds light on the all too prevailing ignorance of the medical man, specialist as well as general practitioner, and places in his hands means for the alleviation of the sufferings of many an individual whose ailments are but too often treated slightly or not at all.

We have in Dr. Robinson an authority who is not swayed by any consideration other than the welfare of man.

M. W. P.

Editorial.

Prognosis in Diabetes Mellitus.

The extremes between the statement of Osler, who says he has never seen a case of true diabetes cured and that of the careless and self-confident doctor who has little difficulty in eliminating sugar from the urine offers a wide range of selection and opinion.

As it is rarely an acute disease except in the very young, the length of life, after it has been discovered, depends on a good many factors and it is in the consideration of these that the prognosis can be made, not by the number of years, as stated by one author who says between fifty and sixty per cent live only three years, but by the intelligent co-operation of the patient. Undoubtedly it does shorten life when once fully developed, but its termination is often to be ascribed to some frequent and fatal complication to which this class of patients is highly susceptible. The earlier in life diabetes manifests itself, the shorter that life from a few days to as many weeks, while, on the other hand, the longer the period past 40 years the longer the life.

The explanation generally accepted for this is that during the early periods of life, energy is required for growth and development, while in the adult, growth being completed, the strain on the tissues, digestion, etc., from the loss of sugar is better borne.

The old French division of diabetes into the lean and fat kind, still has to some degree, its practical side, as far as prognosis is concerned to this day, because the thin and poorly nourished are more susceptible to coma and tuberculosis, whereas in fat the disease is better controlled by diet.

Owing to the uncertainty as to the exact cause of each case of diabetes, close observation has shown that malignant disease of the pancreas, and chronic pancreatitis offer the poorest chances for living, but where diabetes is caused by gallstones, injuries to the head and spinal cord and can be reached by surgical means, the prognosis shows a decided improvement.

While the amount of sugar calculated from the total output of urine in 24 hours is the method most frequently relied upon to determine whether a patient is better or worse, and has a certain amount of value as a rough and

ready method, still to rely on that alone without knowing more about other metabolic changes and the exact amount of carbohydrate and protein intake may lead to grave error. A patient who can remain free on 50 grams of bread and the ordinary meat and vegetable diet, can be regarded as having a mild form, but if starches are totally excluded and sugar still appears on protein diet the prognosis at once becomes grave. The presence of acetone and diacetic acid are of still more importance, as the tests for these bodies are simple and easily carried out, and should be used much more frequently than they are.

Lately much more attention and importance has been directed to the estimation of ammonia-nitrogen, as it is called, and owing, perhaps, to the difficulty some may have in finding ready access to the method it will here be given succinctly: To 50 c.c. of distilled water are added 10 c.c. of filtered urine; to this is added a few drops of a 1 per cent alcohol solution of phenolphthalein as an indicator. Neutralize this carefully with a decinormal solution of sodium hydrate. Take 20 c.c. of a 20 per cent solution of formalin, also made neutral, and add to the diluted urine. Titrate this with the decinormal sodium hydrate solution until a pink color just begins to appear. The number of c.c.'s needed to bring out this color multiplied by the factor 0.0017 equals the amount of ammonia in 10 c.c. of urine, and this multiplied by the total number of c.c.'s in 24 hours equals the total amount of nitrogen as ammonia. As to the interpretation of the results, it may be said that in a healthy person on a mixed diet it amounts to 0.7 grams; in diabetes it may be as much as 8 to 12 grams. Past 40 years of age 4 grams of ammonia indicates a severe form of the disease.

Persons of means and education live longer as a rule with diabetes than the poor and ill nourished because the former have the wealth to command a suitable climate and cessation from nervous strain and worry, and on account of superior intelligence can and do give better co-operation. In no disease that a physician is called on to treat does more depend on the long, careful and individual study of the patient than diabetes. Each one is a law unto himself, and in none will success be more amply rewarded.

It may be said in conclusion, that the prognosis in diabetes in later years has become decidedly more hopeful than at any time since

1674 when Willis first discovered sugar in the urine.

M. D. H., Jr.

The Bill for the Repeal of the Special License Tax on Physicians in Virginia,

For which the Legislative Committee of the Medical Society of Virginia and doctors throughout the State have long been working, passed the Senate, February 11, by a vote of 30 to 3 (7 being absent). It is now before the House on its second reading, having received a favorable report from the Finance Committee.

Realizing the influence which may be brought to bear from the folks at home, the Committee requests that physicians *at once* get in touch with their representatives in the House of Delegates, and urge their influence in support of this bill. The ground on which exemption is being asked from this *special* tax is based mainly on the support given by physicians to the State and County Boards of Health—a work which tends to lessen the income of the physician by improving the health of the people of the State—and the assistance given in maintaining the records of the State.

Medical Scholarships at the University of Virginia.

The current catalogue of the University of Virginia, just issued, announces that, under the will of Dr. Cumberland George Herndon, two scholarships named, after the testator's father, the William S. Herndon scholarships have been founded in the Department of Medicine of that institution. Candidates must be unable to defray the expenses of their medical education except by borrowing or doing outside remunerative work during the session and must signify their intention of entering the medical service of the Army or Navy of the United States. The scholarships provide for the necessary expenses of the student during the four years of his medical course and will yield approximately \$425 to \$450 per annum according to the income from the fund. They will be awarded as vacancies occur. One will be awarded in September, 1914.

Information as to conditions of appointment may be obtained by addressing the Dean of the Department of Medicine, University, Va.

Drs. H. D. Gilmer and E. R. Miller Associated in Practice.

Dr. H. D. Gilmer, formerly of Elkton, Va., but who has spent the past year in the clinics

and hospitals of Baltimore and New York, and Dr. E. R. Miller, formerly of Harrisonburg, Va., have formed a partnership, and located at Hagerstown, Maryland. They will limit their practice to diseases of the eye, ear, nose and throat.

Dr. William M. Smith,

Who was sometime ago appointed postmaster of Alexandria, Va., assumed the duties of his office about the first of February.

Dr. John Hunter Selby

Announces his removal to Washington, D. C., where he will limit his practice to co-operative examinations by Roentgen Ray methods.

Dr. Arpad G. Gerster Honored.

Dr. A. G. Gerster, New York City, senior attending surgeon at Mt. Sinai Hospital, retired from active duty there January 1st, after a service of 39 years, and was presented with a silver tea service in recognition of his work.

Dr. M. P. DeBoe.

Formerly of Bedford County, Virginia, has moved to Cocoa, Florida.

Dr. T. Marshall Jones,

Alexandria, Va., was on January 22nd, appointed coroner of that city, *vice* Dr. S. B. Moore, who was not a candidate for re-election.

Dr. Horsley Honored.

Upon invitation of Professor W. L. Rodman, Dr. J. Shelton Horsley, Richmond, Va., on January 20th, delivered a lecture at the Medico-Chirurgical College, Philadelphia, on surgery of the blood-vessels, including the methods of suturing blood-vessels, and on the following day, he operated upon a case of arterio-venous aneurism of the femoral artery just below Poupart's ligament.

Board of Pharmacy of Virginia.

At the examination held on January 20th, there were 31 applicants for Registered Pharmacist and the following were successful:—H. R. Hammer, Lynchburg; H. E. Crabtree, Bristol; B. F. Bowles, Richmond; A. A. Arnold, Cape Charles; G. L. Miller, Charlottesville; W. M. White, Portsmouth, and W. T. E. Smith, Richmond.

The following applicants for Registered Pharmacists were given the Assistant Pharma-

cist certificate:—W. E. Strole, Richmond; J. L. Stephens, (col.) Raleigh, N. C., and J. W. Chambers (col.), Buckingham, Va.

There were 7 applicants for Registered Assistant Pharmacist and the following was successful:—W. C. McNew, Richmond.

The next examination will be held in Richmond, the 21st of April, 1914. All applications shall be filed with the Secretary, Mr. T. A. Miller, Richmond, at least ten days prior to examination date.

Dr. John L. Kable,

Recently of Staunton, Va., has moved to Huntington, West Virginia.

Improved Death Rate in Chicago This Winter.

Compared with corresponding periods of the last five years, the mid-winter mortality record for Chicago, for the eight weeks ending January 24, 1914, according to the Bulletin issued by the Department of Health, shows a marked improvement in the death rates from impure air and acute contagious diseases. Quoting from this Bulletin, "There has been a 29.6 per cent reduction in the pneumonia death rate this winter, 23.2 per cent reduction in the influenza death rate and even a 7.8 per cent falling off in the tuberculosis rate." This reduction is attributed to more outdoor living and free airing of living quarters on account of mild weather than is usual in winter. The reduction in the acute contagious diseases of childhood is also apparently attributable to this fact.

The Virginia Antichiropractor Act Upheld by Law.

The validity of the Antichiropractor act, as passed by the General Assembly of Virginia in 1912, has been sustained by the Supreme Court of Appeals, by its refusal, the last of January, of a writ of error in the case of the chiropractic who was found guilty of violating the act and fined \$50 in Roanoke, last November. The act prohibited chiropractors in this State from employing their art of healing, in which massage plays a prominent part, without a certificate from the State Board of Medical Examiners.

New District Hookworm Inspector in Virginia.

The State Board of Health announces the appointment as District Hookworm Inspector of Dr. J. Thompson Booth, of Ashland, Va., to

succeed Dr. George A. L. Kolmer, who has resigned to enter private practice at Salem, Va. Dr. Booth is a graduate of the University College of Medicine, of this city. For the present, he will continue school inspection, but, with the opening of the Spring, will begin the operation of hookworm dispensaries in infected counties.

Crawford W. Long Memorial Hospital.

A number of prominent Atlanta, Ga., physicians have filed a petition in the superior court for the incorporation of an organization to conduct a new hospital in that city, with the above name, in honor of the discoverer of anesthesia. The hospital will at first accommodate 50 patients, and the incorporators have the privilege of increasing the capital stock to \$100,000.

Dr. William T. Oppenhimer,

Richmond, Va., has been appointed chief surgeon of the Chesapeake and Ohio Railway, to succeed Dr. C. W. P. Brock, retired.

The Southside Virginia Medical Association

Will hold its first quarterly meeting for 1914 in Courtland, March 10th. Dr. W. D. Ken-dig, Kenbridge, is president, and Dr. E. F. Reese, Jr., Courtland, secretary-treasurer.

Dr. James H. Hargrave, Jr.,

Of Garysville, Prince George County, Va., was appointed coroner of that county, by Judge West, of the Circuit Court, late in January.

Richmond City Hospital To Be Opened Shortly.

The old Virginia Hospital, which has been loaned by the Medical College of Virginia to the city of Richmond for a new City Hospital, is now being repaired and improved, and it is hoped it will be ready for occupancy early in March. The old City Hospital will then be used exclusively as a poor house.

Annex to New York Hospital for Care of Venereal Diseases.

An annex, to be devoted solely to venereal diseases, has been erected in the rear of the main hospital buildings of the Long Island College Hospital, Brooklyn. It is two stories in height, with accommodations for sixty patients, and has been so arranged that the syphilitic patients are kept altogether on the first floor and the gonorrheal patients on the second, the equip-

ment for each floor being complete in itself, even to having separate dining-rooms. Male nurses of experience have complete care of the patients who will receive the most modern treatment.

Dr. C. C. Bass Honored.

In January, the Orleans Parish Medical Society presented Dr. C. C. Bass, New Orleans, a medal in recognition of his services in the field of medical science, and especially for his work with the plasmodium.

The Medical and Chirurgical Faculty of Maryland

Elected Dr. Randolph Winslow and Dr. John Ruhrah, both of Baltimore, president and secretary, respectively, for 1914.

Radium Treatment of Cancer.

The New York City Department of Health, owing to the increasing interest aroused in the treatment of cancer, on account of the furore which the radium treatment has raised, will devote the forthcoming issue of its Monthly Bulletin "to an unbiased account of the progress of cancer research, including an authoritative statement of the place of radium as a therapeutic agent in this disease."

Although the radium treatment may eventually prove of greater value in the treatment of cancer than in the past, it is as yet in the experimental stage, and the entire removal of cancer by surgery oftentimes, when taken in the early stages, should not be overlooked in an attempt to try the latest method. According to reports, the greatest successes from the radium treatment heralded to this time have been obtained chiefly in the treatment of external cancers, especially those of the skin.

Malaria and Pellagra in Mississippi.

The Mississippi State registrar of vital statistics reported that during the month of December, 1913, 3,376 cases of malaria had been notified in that State, and 198 cases of pellagra.

Jefferson Hospital, Philadelphia, Recipient of Fund for Study of Cancer.

The Jefferson Hospital, Philadelphia, has recently received a donation providing an annual income of \$3,500 to be used for the study of the treatment of cancer, with especial reference to the use of radium. The commission in charge of the investigations includes Drs. J. C. Da-

Costa, W. M. L. Coplin and Hobart Amory Hare.

National Conference on Race Betterment.

Four hundred men and women of prominence, comprising the first representative group of scientific experts ever gathered in America for that purpose, met in Battle Creek, Mich., January 8 to 12, to assemble evidence of race deterioration and to consider methods of checking the downward trend of mankind.

The addresses, together with open discussion of many of the points considered, constituted a very widespread study of all phases of evident race degeneracy and the advocacy of many ideas of reform. Some of the suggested methods of improvement are frequent medical examination of the well, outdoor life, temperance in diet, biologic habits of living, open air schools and playgrounds, the encouragement of rural life, the segregation or sterilization of defectives, the encouragement of eugenic marriages by requiring medical certificates before granting license and the establishing of a eugenics registry for the development of a race of human thoroughbreds.

Among those having a share in the program were:—Rev. Newell Dwight Hillis, Jacob Riis, Judge Ben D. Lindsey, Booker T. Washington, Dr. Victor C. Vaughan, Dr. S. Adolphus Knopf, Dr. C. B. Davenport, Dr. J. N. Hurty, the Very Reverend (Dean) Walter Taylor Sumner and many others of equal prominence.

Surgeon L. L. Lumsden,

Of the U. S. Public Health Service, on request of the State Board of Health of Maryland, was, on February 2nd, directed to proceed to Rockville, Md., and make an investigation of the origin and prevalence of typhoid fever in that town and vicinity.

Eye, Ear, Nose and Throat Section of Southern Medical Association.

This section of the Southern Medical Association was created at its last meeting, with Dr. Homer Dupuy, New Orleans, as chairman, and Dr. S. Nelson, Memphis, Tenn., secretary.

Dr. Thomas E. Stratton.

Of this city, who recently suffered a stroke of paralysis, is reported as being much improved.

The International Cancer Research Society.

The object of which is the study of the methods of treatment of cancer, was organized in

St. Louis, in January. Dr. L. M. Ottofy and Dr. W. E. Bremser, both of St. Louis, were elected president and secretary-treasurer, respectively. The vice-presidents represent various states, Cuba and Honolulu.

Reduced Death Rate in New York City.

Reports from the New York City Department of Health show a gradual decrease in the death rate since 1909 of 2.24 per 1,000 population. In 1909, the rate was 16. per 1,000 and for 1913, 13.76.

Appeal Made for Better Milk for Babies.

The first of a series of talks and demonstrations to be made in large American cities, as a means toward securing better milk for babies, was given in New Haven, Conn., the middle of January, when Nathan Straus appeared before the Chamber of Commerce there and described the movement. Miss Nason, of the New York Laboratory, described the laboratory and method of Pasteurization in detail. The Pasteurization of milk for babies in New York City, as instituted by Nathan Straus, has resulted in the saving of thousands of babies there.

The Common Drinking Cup Soon to Be Abolished in Virginia.

Though cognizant of the dangers which lurk in the common drinking cup, used in public places, the State Board of Health does not intend that the people of Virginia shall be forced to pay a royalty to makers of the cup-venders for the privilege of using their machines. To this end, the Board of Health has just advertised for information of the individual drinking cup devices and vending machines which can be bought, not leased, and will recommend their adoption by the people when they may be had cheaply and without the annoying lease requirements.

Obituary Record.

Dr. John D. Pulliam,

Of Plentiful, Spotsylvania County, Va., died in Richmond, January 15th, from pneumonia contracted while in this city to attend a nephew. He was seventy-six years of age, and had practiced in Spotsylvania County for forty-five years, where he was greatly beloved. Dr. Pulliam had recently retired from practice except in special cases. Several children survive him. The interment was made in the family burying ground in Spotsylvania.

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Original Communications.

THE CONSERVATION OF NERVE AND MENTAL HEALTH.*

By J. ALLISON HODGES, M. D., Richmond, Va.
Professor Clinical Neurology and Psychiatry, Medical
College of Virginia.

During the course of these clinical lectures, many cases in children and young people, of both organic and functional nervous disease, have been shown you, some of them total nerve and mental wrecks, and consequently in deference to that broader spirit of preventive medicine which pervades modern science, and as applicable especially to this line of study, I defer our usual clinical lecture and direct your attention to-day to the Conservation of Nerve and Mental Health.

This age with its bustle and confusion, its work and worry, its hopes and disappointments, its nerve tension and distracted brain, brings obligations and exactions which tend, probably more than ever before, to threaten and unbalance nerve and mental force, and hasten a premature decay.

As physicians, it is your duty, not only to treat disease, but to study your patient and your patient's life and environments, and prevent disease of mind and body if possible, for in no other way can you measure up to the highest responsibilities of your profession.

The ever-increasing demands of the future will surely tax the vital and mental energies of your patients to the utmost limit of endurance, and it is your duty, as it should be your pleasure, to protect them against these as far as it is possible, not only by treating them, but by teaching them how to secure and maintain the

most perfectly developed nerve and mental equilibrium.

A proper conception of the necessity for attaining and preserving a better balanced nerve force, and a higher mental development is denied most of us, because of our unfortunate ignorance regarding the true nature of the human mind.

Just as in ancient days, so also at the present, the average student following Plato's theory, either compares the mind and brain to a player with his musical instrument, or, believing as Lucretius did, regards it as a musical box wound up for just so many years to play just so many tunes.

Either theory is as disappointing as it is erroneous, for the acceptance of either limits, in its fatalistic tendencies, the possibilities of mental development, for the human mind with its associated higher nerve centres is as capable of improvement as is the human body.

In this day of inspiring privileges, it should be our task to see to it that the hygiene of the mind is as important and as much studied as the hygiene of the body.

Likewise, in this age of unrest, of striving after the unknown and the unseen; in this era of ever-changing conditions, new forces in the material, moral and scientific world have been set to work, and counterforces of mind and body and soul must be evoked to stem the tide.

Never was the game of life so entrancing, never was the pride of ambition so enthralling, never was the path of victory so magnificent, nor so fulfilling, if we had but the nerve force and mental efficiency to endure the test and prove withal the victors.

Great duties, as well as grave perils, demand full preparation and vigorous action, and surely no period of our history in the past with all of its perplexing problems, has ever called for

*Lecture delivered in the Memorial Hospital Amphitheatre, November 29, 1913.

men and women more highly endowed, or more mentally efficient for the battle that is to be waged, than does the present with its surging activities and boundless possibilities.

Prevention is the watchword of the modern world, and in order to preserve physical efficiency and prevent physical disease, and in a measure meet the exactions of the times, hygiene of the body has been studied and practiced to an extent in recent years that has been most commendable, if not entirely warranted.

But this is not enough; it is not sufficient that one can do a day's work with vigor, and eat three meals a day with zest. "The ox in the field" can match such health—"the man with the hoe" can meet such conditions. Human health, mental health, goes beyond and above that; human beings have brains, and even the most robust physical health is not worth the having, unless mental health—health of brain—goes with it, *pari passu*.

To many, it may come with the force of a new discovery that brains are not automatic machines, or that human beings really have brains, but such is the fact, even if we appear oblivious to it, and consequently our mental, as well as our physical health must be preserved and protected, so that we may think better, feel better and act better than we now do.

The preservation and improvement of our muscular structures, as important as it is, is not our whole duty.

Our muscles may be weak, and yet we can supplement this defect by the employment of another's strength.

Is this true, however, of a weak brain? If our brain is not so developed as to work with maximum efficiency, can we remedy the defect by employing some one to perform the work we cannot do? Surely not, for "weak brains put their possessors in the class of the hired, and the compensation is correspondingly small."

The matter of the difference between the constructive man of affairs and the hireling, is but a difference of a few ounces of brain substance, but this difference is the potential that moves and nerves the world, and is never a drug in the open market.

A Sandow, perfect in personal beauty and faultless in physical perfection, might yet be a child in knowledge, and an infant in brain development. Have you not seen such cases?

And do you not turn away in aversion, if not disgust, at such a spectacle, be it man or woman?

Physical prowess no longer conquers the conditions existent to-day; *that* age has passed, and a new era has dawned, calling more strongly and more urgently than ever before for stalwart men of brains.

The perfect man, the great man, is he who can not only meet occasions, but make them.

Mental hygiene, then, not only includes physical hygiene, but embraces much more, of which if in the past we have been oblivious, is not so much a sin of omission, as of commission.

Most of us have for ourselves and for our children, a standard of physical health, a standard of moral living, and a standard of educational efficiency, but have we a standard of mental health—that is personal and absolute?

For instance, how many of us have ever taken an inventory of our mental health, or our mental capacities, or that of our children? We accept the fact that we are endowed mentally by a beneficent Creator, but we seldom "take stock" of this best and highest gift that is our common heritage.

We are careful at stated times to study and appraise the physical, moral and educational qualifications and development of ourselves and of our children, but we do not apply the tests which would inform us as to the proper status of our, or their mental health. We do not stop in the onrush of life to even enquire if our mental efficiency is at par, or, generally, give one single definite thought to the specific development of brain power. We may have noticed in an indefinite way that our memories are not as precise and retentive as they were formerly, that our capacity for concentration is not so marked and perfect, that our initiative is weak, that our will power is vacillating, that our judgment is impaired, that our habits of thought are not logical, that our brains fag quickly and easily, that trifles become mountains of doubt and indecision, that worry begets emotionalism and finally disgust and despondency, and yet "we have taken but scant notice of all these deteriorating conditions, which are but evidences, if we would but know and admit it, of the fact that our brains are slothful, and are not the well-ordered and well-disciplined machines that they might be, if properly conserved and carefully

trained." And why is this true? Simply because we have not understood, nor properly appreciated the fact that it is as important for us to train and develop our brains as our bodies, and further, because most of us have accepted our mental endowment as God's first and best gift, and have been supinely satisfied to add nothing to the equipment of His handiwork, even if we have been lavish in the expenditure of the substance of his beneficence.

In truth and in fact, many of us have never realized that mental hygiene and mind training are far more important than physical hygiene and bodily training, important as these are, and that in the last analysis, personal efficiency is really and truly mental proficiency, the foundation of all efficiency.

It is scientifically true that every mental action has a physical substratum in the brain, and it is equally true that every perverted mental action is evidence of a perversion, however intangible of the brain-substance. Necessarily, then, the physical welfare of the brain is intimately and directly concerned in all questions of mental hygiene, and anything that affects the myriad specialized cells of thought must resultantly influence, favorably or unfavorably, the activity and healthy functioning of the mental organs, the basis of all power.

Conspicuously affecting the brain in a deteriorating and destructive way are three important conditions: viz: vicious habits, injurious thought germs and certain diseases. In speaking of the first, vicious habits, it is only necessary briefly to affirm, what is familiar to you all, that habits may be either physical or mental; if physical, they may be a misfortune simply, but if mental, they may be and are apt to be, indeed, a calamity, both physically and mentally.

As regards the second, injurious thoughts, it is only necessary to recall to your minds this era of germophobia in which we live, to emphasize the importance and benefits of the application of the germ theory to the present attainments and advancements in both Medicine and Surgery; but it may not be so obvious to you, if you have not considered this subject, why, if to-day we believe so firmly and so justly in that wise hygienic maxim:— "clean out and clean up", the best preventive germ theory ever enunciated, that we have not advanced one most important step farther, and demanded that if

this dictum be applied to our bodies, it should also logically and hygienically be applied to our minds as well, if we would conserve perfect health.

If the body can be destroyed by various disease germs, why cannot the mind be polluted by injurious thought germs? If cleanliness is the preventive of the one, why not of the other?

Evil thoughts, malicious intentions, perverted actions, abuse and misuse of intellectual activities can only be "swatted" out by good thoughts, instructive reading, informative culture and proper ambitions.

We do not know, not one of us, the mighty force and magnificent power and possibilities that lie dormant in a healthy mind, for we seldom have it free from injurious and destructive thought germs.

As for the third general condition which affects unfavorably the healthy action of the higher mental centres, certain disease conditions, such as the toxins of alcohol and syphilis, and the long and destructive chain of symptoms arising from cardio-vascular-renal diseases, are too well known by you for me to dwell upon. It is but sufficient that I name them, to suggest to your minds a series of disease-expressions, with whose realities and dire consequences to both mind and body, you are no stranger, but ever a sincere sympathizer, for no man living knows nor fears nor appreciates, as does the family physician, the possibility of seeing in those he loves, a clinical picture of these fatal and deplorable mental maladies.

Two hundred thousand individuals, are said to-day to be confined in institutions for the insane in the United States, at a cost of not less than \$165,000,000—a sum greater than the value of our annual export of agricultural products, and this company of insane dependents is ever-increasing. Fifty to seventy-five thousand of this number are said to owe their condition, wholly or in part, to alcohol, and the proportion of cases in which specific disease ultimately has led to the same result is appallingly large. Probably the most accurate data regarding the proportion of the terminal form of the latter disease, resulting in insanity, is obtainable from the statistics of the Austrian Army, where the records covering a long term of years, and aggregating 41,000 cases, show that one in twenty are finally afflicted with general

paralysis, or paresis, colloquially known as softening of the brain.

It must be remembered that these cases had been subjected to treatment, or ordinarily, the rate would have been proportionately higher, as, of course, it must be, and is, in civil life. Owing also to the high-pressure life of today, rapidly increasing disease, due to heart and kidney complications in adults above forty-five years of age, is succinctly and forcibly illustrated in the recent report of a Life Insurance President who says that during last year, forty per cent. of the mortality in his Company was due to this class of disease.

This is but in line with other statistics, and forcibly and pertinently proves the fatal and increasing tendencies of the age which have to pay the penalty of the price of fast and furious living.

It is likewise true that, although the longevity of the race has increased within recent years, it has been, nevertheless, at the expense of adults past forty, and only because of the decrease in infant mortality during this time.

It is not within the province of this discussion to detail the treatment of those conditions which affect mental health, but it is certainly entirely obvious that if a course of treatment can be instituted to make the body efficient, one can likewise be devised for the mind, for the body is servant to the mind, as the mind may be, and should be to the soul, as some writer has said.

Considering that mind governs everything in our world, it has been singularly neglected and misunderstood.

In the past, education in most schools, has simply meant in the main, that the faculties of memory and representation were developed, the one being often forced to the limit, and the other wrongly cultivated at the expense of the other faculties of the mind. This is not a real education, but simply "cramming" and "curling", to use College vernacular, and does not, except in a moderate sense, adequately develop the powers of thought, or self-control or self-development. This, in fact, is not true education; it is only a "fashionable faddism, catering to the whims and demands of a boastful and unlearned constituency."

It has been well said that the control of thought, and its use to modify character already formed, to change even ex-

ternal surroundings, or at least, their effect on self-development, and thus bring about health, happiness and success, is the purpose of all well-rounded and fully developed schemes of perfect education, and is the chief end sought in the conservation of nerve and mental health, nerve equipoise and mental efficiency.

The possibilities of "thought-training are infinite, and its consequences eternal," and yet few realize that self-control and consequent self-development in mind and body is only mental control, pure and simple.

To accomplish this practically, our whole educational system must be revolutionized and we must no longer be bound "hand, foot and dragoon" to system-soaked schedules of the past in which personality is abased, if not wholly lost, and all pupils alike are made to bow to the time-honored and traditional scholarship schemes of high standards with "high averages," for the *children*, and not certain prescribed courses, should be our most important consideration.

To be specific, the conservation of nerve and mental health is an individual task and a personal duty, and in addition to what I have suggested as the individual's share in this work, it should also be the physician's privilege, as I am sure it will be his pleasure, to aid every patient to accomplish this laudable end. In my opinion, this can be best effected by having patients look to their physicians in a new light, namely, as medical appraisers, or preventive officers, and at certain climacteric or critical periods of life, say from three to five, from thirteen to fifteen, and from forty to forty-five years of age, allow them to take an inventory, as it were, of themselves, of their predispositions to disease, and their present standard of health, as well as of their psychic and nerve states, so as to improve, protect and conserve their physical and mental activities. By this means and our present day methods of exactness and precision in diagnosis and prognosis, the tendencies to a nervous collapse could be foreseen in time and properly estimated, and the tendencies to a physical deterioration, with resultant mental disorders, could be considered, and if any of these should be threatening or imminent, preventive or curative measures could be instituted.

I am aware that this method may appear didactic and idealistic, but it is possible, and it

is feasible, and it is coming. In many of the schools, already medical inspectors have assumed and performed the duties that careless and unthinking guardians and parents have shirked and would not undertake, and the beneficial results have even now been more than could have been naturally expected. Disease in its early expressions has thus been discovered and its deteriorating influences prevented, while at the same time nerve force and mental vigor have been fostered and cultivated for the better conservation of future nerve and mental health.

DIAGNOSIS AND TREATMENT OF PYELITIS.*

By C. C. COLEMAN, M. D., Richmond, Va.

Statistics collected by Stanton from a number of American hospitals where the cystoscope and X-ray are routinely used in suspicious cases show twice as many surgical lesions of the kidney as do the records of those hospitals in which such patients are investigated after the older methods.

The errors of diagnosis in surgical diseases of the kidney arise, in most instances, from the failure to employ accepted clinical and laboratory tests rather than from the lack of proper facilities for diagnosis. There is not often a necessity for exploratory diagnosis in diseases of the kidney. An operation upon this organ, indicated after a careful investigation of the patient, is entered into by the surgeon with a clear idea of the pathologic problems and the therapeutic indications. With such means of investigation as we have at our command the study of the symptomatology and pathologic physiology of disease of the kidney yields more definite results than that of any of the internal organs of the body.

Much has been gained in recent years by a correct interpretation of the bladder symptoms which may occur in the various renal infections. Disturbance of the bladder may be the sole expression of a serious lesion in the kidney and a common mistake has been to treat the symptomatic manifestation of the bladder without an investigation of its cause which may be in the kidney. This is true especially in female patients in whom chronic cystitis is exceedingly rare as a primary condition.

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Pyelitis is a very common disease of the kidney requiring, as do many other affections of this organ, the employment of modern methods of diagnosis for its prompt recognition and proper treatment. By utilizing the recent advances in diagnosis and treatment simple pyelitis has been almost entirely removed from the class of diseases of the kidney requiring surgical operation.

Pyelitis is sometimes a complication of the infectious fevers. It is frequently secondary to many of the purely surgical renal conditions such as pyelo-nephritis, renal tuberculosis, calculus, or anomalous vessels. I shall deal with pyelitis, however, as a simple uncomplicated catarrhal inflammation of the pelvis of the kidney, which should be readily recognized.

Pyelitis is frequently overlooked. It is often diagnosed as malaria or in many instances considered as an inflammation of the appendix or gall bladder.

The tendency toward periodicity of attack together with its sudden onset partially explains the incorrect diagnosis of malaria, while its more frequent occurrence on the right side and the associated abdominal disturbance frequently present, may lead to an erroneous diagnosis of appendicitis or cholecystitis. An attack of acute pyelitis begins rather suddenly with pain in the lumbar region. There is tenderness in the costo-vertebral angle, and rigidity of the lumbar muscles of the same side. The character of the pain varies. It may be either dull or severe. The pain sometimes radiates along the ureter or transversely across the abdomen. In some cases the greatest pain may be located in the region of the opposite kidney. The temperature fluctuates between 100 and 104 or 105, and there may be irregular chills. There is enlargement of the infected kidney and it may be palpated. Urination is frequent but not painful. There are present all the phenomena of a septic process, such as headache, rapid pulse, loss of appetite, constipation and elevation of the leucocyte count. The polynuclears are proportionately high. The urine is usually acid and contains pus, epithelial cells, bacteria, albumen and a few red blood cells. The amount of pus varies greatly and repeated examinations of the urine are necessary to obtain a correct idea of the extent of the suppurating process. The acute symptoms of such an attack will usually sub-

side in from several days to a week though for a considerable period of time the patient may show the effects of illness. The tenderness over the kidney persists indefinitely and the urine contains pus for several weeks.

These attacks may be repeated and a chronic pyelitis result which continues until serious damage is done to the parenchyma of the kidney.

In marked contrast to the acute type of pyelitis there is a form of this disease in which the onset is very insidious. In such cases there may be few symptoms of a renal infection. The general impairment of the patient's health, with the associated bladder disturbance, should **direct attention to the kidney.**

Hematuria is not generally a feature of inflammation of the pelvis of the kidney though it is occasionally present. These cases have been described as pyelitis granulosa. In such cases the pelvis of the kidney and upper ureter are deformed by the contraction of the scar tissue produced by the long continued diffuse inflammation. The hemorrhage is due to an involvement of the renal papillae by the inflammatory process. This type of pyelitis is not accompanied by pain unless the ureter is obstructed by a blood clot or pus.

While the history and physical examination have some value in establishing a diagnosis of pyelitis we must rely not only on the urinary findings but mainly on such objective signs as can only be furnished by a cystoscopic examination and ureteral catheterization.

In spite of the recognized value of the cystoscope in genitourinary diagnosis it is a fact that only a small percentage of patients afflicted with surgical disease of the kidney and bladder are given the benefit of this important method of examination. Failure to employ this instrument in cases of chronic disturbance of the bladder frequently leads to serious errors of diagnosis. This profession either does not appreciate properly the value of cystoscopic examination or if they concede its value they hesitate to recommend it because it may be disagreeable to the patient. The cystoscope is as essential to an intelligent study of pyelitis and the other surgical lesions of the kidney as is a microscopic examination of the blood in suspected malaria or the X-ray in fractures.

For a long time medicine and surgery struggled along without the refinements which have

given precision to diagnosis, and the diagnosis was nearly always a long distance behind the disease. The principal objections urged against the cystoscope in diagnosis are that the examination is painful and its use requires more technical knowledge and experience than any but a skilled operator possesses. In some cases a cystoscopic examination is very painful while in many patients the pain amounts to nothing. If there is much pain there is frequently also considerable pathology and therefore greater necessity for an examination which will give accurate information of the conditions present. In some renal diseases, such as tuberculosis, the bladder is very intolerant and a general anesthetic may be necessary. In pyelitis on the other hand there is only slight pain from the examination in most cases unless the bladder has become very irritable from a secondary cystitis. The same contra-indications apply equally to the cystoscope in the diagnosis of pyelitis as prohibit the use of the urethral sound. If there is an acute inflammation of the lower urinary tract no instrumentation of any kind ought to be attempted.

We are not safe in promising our patients that a cystoscopic examination will cause no pain for it may develop that it is both painful to the patient and very trying to the operator. There is no method of estimating a patient's perception of pain or disagreeable sensations and the personal equation is a very important factor in these examinations. Even those patients who complain most of pain will frequently, after the examination is completed, say that the nervousness was worse than the pain. Morphine hypodermically combined with the local use of cocaine or alypin will usually be sufficient to prevent pain. A cystoscopic examination is safe, generally painless, especially in women, and furnishes accurate and important information in the diagnosis of pyelitis. In no other way can such information be obtained.

We cannot afford to place too much reliance on a diagnosis based upon the symptom groups combined with urinary findings in an infection of the genitourinary tract. They are too often misleading as to the location and nature of the trouble.

On cystoscopic examination the bladder in pyelitis may show a diffuse catarrhal inflammation with changes more pronounced about the

orifice of the ureter on the affected side. There is swelling and puffiness of the ureter opening and the urine comes away in a steady stream instead of the rhythmic spurts seen in normal conditions. A careful inspection of the bladder should be made and each ureter catheterized. We can thus eliminate obstruction of the ureter by a stone or by cicatricial contraction and at the same time secure a specimen of urine from each kidney for examination. In acute cases the swelling of the ureteral mucosa while in the chronic type contraction of scar tissue may diminish the caliber of the ureter and cause retention in the pelvis of the kidney. Pus, epithelium, casts, a few red blood cells and colon bacilli will be found in the urine from the diseased kidney. The specimen of urine so obtained should be examined carefully by the various tests for the presence of the tubercle bacillus. After ascertaining which kidney is infected further evidence is necessary to exclude pyelo-nephritis which frequently results from chronic pyelitis. This differentiation is possible by the use of the functional test of kidney efficiency as proposed by Geraghty and Rountree. The kidney function is not impaired in pyelitis while in pyelo-nephritis the damage to the parenchyma of the organ reduces its activity. No functional test for kidney elimination is perfectly satisfactory and greater dependence must generally be placed on the clinical data in surgical conditions of the urinary tract. In estimating the relative working capacity of the kidneys, however, when one is suspected of disease, these tests are very valuable. The phthalein gives more accurate information and is simpler than any other in general use. With a catheter in each ureter the dye can be given subcutaneously, intramuscularly or intravenously. The latter method is to be preferred. After the catheters are placed in the ureters the urine is collected for fifteen to forty-five minutes and the percentage of elimination estimated by a colorimeter. In my experience with the phthalein test for the determination of the individual working capacity of the kidneys I have always injected the dye either subcutaneously or intramuscularly. The intravenous method, however, requires a shorter time for elimination and has given entire satisfaction.

In addition to the valuable evidence afforded by the examination of the urine from each kid-

ney separately and important information derived from a functional test of the individual kidney efficiency, ureteral catheterization allows an approximate measurement of the capacity of the renal pelvis. Chronic pyelitis sometimes causes marked changes in the outline and size of the pelvis of the kidney. To determine the capacity of the pelvis, sterile water is slowly injected through the ureteral catheter until pain is produced in the region of the kidney. The water is then allowed to return through the catheter and is measured. The variations in size and irregularity of outline of the renal pelvis may be further determined by the injection of a silver salt through the catheter followed by an X-ray of the kidney. Apart from the use of the X-ray for the purpose of detecting a calculus which may be the underlying cause of pyelitis, radiographic diagnosis is a very important factor in determining the secondary changes due to long continued inflammation of the pelvis and upper ureter.

Thus all the elements of a diagnosis of pyelitis can be obtained by the use of the cystoscope combined with functional tests. X-ray and microscopic and chemical examination of the urine. By the use of these appliances and methods we may exclude appendicitis, ureteral stone, gall bladder disease, renal tuberculosis or pyelo-nephritis.

In the constitutional treatment of acute pyelitis the first indications are to relieve the pain, reduce the temperature, if high, and promote the elimination of toxic material. Urotropin is very popular as a urinary antiseptic. My experience with this drug in the treatment of pyelitis has been unsatisfactory. If valuable at all in pyelitis it is so only in large doses given with an abundance of water to prevent irritation of the genitourinary tract. Recent investigation has done much to change our views in regard to the antiseptic value of this drug in inflammation of the renal pelvis.

Two grain pills of creosote which are insoluble in the stomach have been recommended in chronic pyelitis. In one case in which it was used it appeared to be beneficial. Creosote, like urotropin, may cause irritation of the kidney and its administration should be watched. In an acute attack it is wise to delay local treatment of the kidney for a week or ten days unless the temperature remains persistently high. In such cases drainage is pro-

moted by passing the ureteral catheter into the pelvis of the kidney and allowing it to remain for several hours.

In chronic pyelitis lavage of the renal pelvis with 25% argyrol is the most effective treatment. These injections should be given every three or four days and the intervals gradually increased but the injections continued as long as the urine contains pus. The highest number of injections required in any case in which I have used argyrol was seven. Three have proved sufficient in a few cases. All of these cases had either lasted sometime and failed to improve or had recurred repeatedly under the usual dietetic, hygienic and medical treatment. Pelvic lavage is rarely accompanied by any pain or discomfort except that arising from the presence of a cystoscope in the bladder. In the pyelitis of pregnancy brilliant results are obtained by this method of treatment. The procedure is somewhat more difficult in pregnant cases but can usually be accomplished. Surgical drainage of the kidney is rarely necessary in pyelitis and should be withheld until pelvic lavage is given a careful trial.

Vaccines have proved a valuable addition to the treatment of chronic pyelitis. The attractive manner in which these vaccines are marketed by the various biological factories and the extravagant claims made by the manufacturers have tended to make the use of vaccines more popular than scientific. Autogenous vaccines are theoretically, at least, the proper agents of the vaccine treatment. The use of autogenous vaccines stimulates the formation of precisely that type of antibodies best suited to combine with the toxic products of the infection. The lack of facilities for the isolation of the infecting agent in a given case, however, and the small number of biologic laboratories to which ready access may be obtained by the general practitioner, make it necessary frequently to employ the mixed or stock vaccine. The use of mixed vaccines is to be condemned except when it is impossible to procure a properly made autogenous variety.

A pyelitis frequently recurs because of some focus of infection elsewhere, such as diseased tonsils, chronic intestinal stasis, chronic cholecystitis and appendicitis. The appropriate treatment of the causative condition should always be undertaken.

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COMPOUND FRACTURES.*

By CHARLES W. DOUGHTIE, M. D., Norfolk, Va.

In this day of surgical achievements, there is perhaps nothing more genuinely wonderful than the results attained by, what I beg to term, the modern treatment of compound fractures. My brief surgical career has witnessed an "about face" in the treatment and a corresponding improvement in the results that many surgeons of today would scarcely be willing to accept as true.

A compound fracture differs from a simple fracture in that it communicates with some cutaneous wound, for which reason it is also known as an "open fracture." The nature of the case at once invites grave complications, and tends strongly to prevent prompt healing, inasmuch as the whole process is directly opposed to the natural method of bone regeneration, aside from the greatly multiplied chances of infection and injury to vital structures, which, unfortunately, may have lain in the path of destruction.

Pathology: In simple fractures we have a solution of the continuity of the bone, the broken ends of which assume certain familiar appearances, though differing widely, so widely that we could scarcely call them characteristic. The periosteum may be, though most likely is not, ruptured throughout its entirety; there is an extravasation of blood and serum between the broken fragments and into the surrounding tissues. Deformity is generally present, and there is practically always impaired function.

In compound fractures we have the break in the bone, generally irregular or jagged; the skin and the structures between it and the fracture are likewise torn; the same hemorrhage exists, but, instead of being interposed and confined in and around the site of fracture, it finds its way to the surface, through the sinus, and escapes. The periosteum is generally freely ruptured; there is a greater destruction of the soft tissues, and not infrequently the nerve trunks, blood vessels and muscles are severely injured, if not destroyed.

Regeneration of bone takes place promptly in most instances, where infection has not occurred, and in practically the same manner as in simple fractures. The method of repair is

*Read before the sixth annual meeting of the Association of Surgeons of the Norfolk and Western Railway, at Old Point, Va., October 2-3, 1913.

familiar to all of us, but it may be well to briefly reconsider, in order that our memories may be refreshed.

The pathological changes are turned into account by nature to accomplish its ends and restore the usefulness of its agent. The extravasated blood begins to be absorbed within a few hours, or practically as soon as the tissues are so completely infiltrated that the retro-active pressure seals the ends of the ruptured vessels. The liquid elements being first absorbed, the cellular element remains, and is supplemented with a cellulose-plastic exudate, which is composed of young connective cells. Granulation tissue is formed from the exudate as well as from the proliferated periosteal cells. Thus, the broken ends become united temporarily by granulation tissues. Lime salts are deposited by the blood as soon as the jelly-like tissue becomes traversed by small blood vessels, whose channels are constructed after their approved manner of regeneration. As calcification takes place, the soft exudate slowly absorbs, till finally we have a rarified osseous structure which compacts as the internal resistance is displaced and the external pressure forces it together by a gradual squeezing or baling process.

This is all very beautiful in simple and non-infected fractures, but in compound fractures the conditions are different, unless by scientific treatment the ravaging and destructive processes are throttled. In this class of fractures, when the blood escapes from the wound, we lose the goose that feathers the nest. The very foundation upon which nature would rebuild its structure has abandoned its task, and, inasmuch as blood serum is a culture media par excellence for bacteria which, by the very nature of the wound and surroundings, receive a most auspicious introduction to the human sanctum, the remaining modicum of extravasated blood is soon destroyed. Then the surrounding structures are invaded, and the destructive process extends to the bone ends, periosteum, small vessels, muscle and everything contiguous, with its coincident destruction, and long and tedious discharging sinus.

Of course, it is scarcely necessary for me to mention the exaggerated predisposition to infection in our class of patients. That phase is indelibly impressed on each of us. The soiled skin, clothes, dirt and grease all add to the immediate chances of an infection. By no

means can we consider the good Samaritan a harmless individual, since in his mistaken kindness he often wraps the wound up with a soiled handkerchief or anything handy.

Treatment: The treatment should be begun before the accident occurs. A moment's reflection will prove the wisdom of this statement. The great railway systems now recognize the importance of the Railway Y. M. C. A., and accord it a merited position. These institutions provide bathing facilities whose elaborateness depends upon the liberality of the particular system of which they are a part. The use of these baths, with plenty of soap, water and clean towels should be encouraged. The companies should bountifully provide these necessities, and enable the employees to use them at little cost. In fact, they could well afford to make possible, as an inducement, a reduction in the rest room cost with each bath. They should provide laundry facilities which would supply clean clothes at nominal cost. The men should be taught through their systems of Y. M. C. A. the great advantage, in the event of accident, of a clean body and clean clothes. They should be taught that the danger of infection is diminished; that the suffering will be less in an uninfected wound; that there will be less loss of time; that the chances of recovery and restoration to usefulness are increased as infection is escaped. The men should be taught what to do in case of an accident, and each crew should be provided with abundant sterile gauze and bandages. They should be made to understand, in addition to stopping hemorrhage, that the clothes should be split and the wound uncovered only long enough to apply a dressing of sterile gauze. They should know that the wound must never be touched, and that the gauze which is to cover the wound must not be touched on the side which is to come in contact with the wound.

Having briefly considered the preventive phase as it is touched by the system and its employees, we now come to the professional side of the work. The aforementioned instructions should apply to the care given by the surgeon. He should never touch or handle the wound nor expose it till the patient is in a hospital. He can do nothing better at the scene of the accident than to cover the limb with gauze, loosely bandage, make comfortable and send him to the nearest hospital. No class of cases, not excluding laparotomies, should receive greater

care or be subject to more rigid asepsis than compound fractures.

In the operating-room, the grease and dirt may be removed with benzine on a sterile gauze wipe, taking care to wipe from the wound always. After the benzine has evaporated, the limb should then be freely painted with a 50 per cent. solution of the tincture of iodine. The wound itself should be painted, or, better still, should be poured full of the solution. Every precaution used in performing a laparotomy should be carried out in the most minute detail. The extremity should be enveloped in sterile towels, and thus handled, but the wound should not be handled if it is possible to avoid it, even with rubber gloves. If there is debris or loose fragments of bone in the wound, these should be wiped out with sterile gauze wipes or removed with forceps. When this has been done, a few loose sutures of silk worm gut may be inserted, but no effort at accurate approximation should be made. This procedure will readily allow serum to escape to the surface; if the wound is infected, it will soon become evident, and as many of the sutures removed as may seem desirable; if no infection has occurred, the wound should be promptly sealed when it will heal primarily, thereby converting the compound into a simple fracture. This method takes advantage of the process which nature uses, in as much as the extravasated blood is largely confined, under which condition it fulfils its role in the process of regeneration. After suturing, the wound should be repainted with a 25 per cent. solution of the tincture of iodine, and loosely covered with shaken gauze, which should be retained in position with strips of zinc oxide adhesive plaster.

The deformity should next be carefully corrected and put up in some good retaining apparatus of as nearly a permanent nature as is possible. I prefer sponging the extremity afield from the covered area with alcohol and dusting with zinc oxide or stearate, then applying a plaster of Paris cast. In applying the cast, I provide a window over the site of the fracture in case occasion arises for inspecting the wound or dressing same. Another device which may prove convenient is the incorporation of a steel wire or a Gigli saw in the proximal layers, that it may later be used for the purpose of splitting the cast in the event of swelling or in the case of shrinking. In the event of the latter, the cut

margins may be shaved off and the cast again made to hug the limb snugly by adhesive strips.

Where a cast cannot be applied or conveniently used, extension and sand bags may prove of great service. In fact, one's ingenuity must be invoked. The limb should be kept slightly elevated.*

Under no circumstances should the wound be disturbed, unless there is unmistakable evidence of infection, such as an increasing temperature with a corresponding increase of the pulse rate that is proven not to be reactionary. We practically always have a slight temperature for the few days following the accident.

Continued pain, swelling, increasing temperature and pulse rate call for an inspection beyond question. Should inspection reveal an infection, we should remove some or all of the sutures, cleanse the wound with a 10 per cent solution of the tincture of iodine, and loosely pack with iodoform gauze or gauze soaked in balsam of Peru, according to the time and indications.

An immunizing dose of tetanus antitoxin should always be administered as a precautionary measure before the patient leaves the table.

In no instance should the surgeon be guilty of attempting to wire or plate a fracture immediately following the injury. Should he do so, he has only the remotest chance of obtaining anything which approaches a favorable result, and he will bring discredit to himself and upon the profession of which he is a part.

Should this procedure seem indicated at all, it is far better to wait till the wound has entirely healed and then to operate under the most favorable conditions possible.

Murphy states that, in an experience of thirty years, he can count all the good results he has obtained following primary wiring or plating upon the fingers of one hand.

Frankly, I am convinced that there are too many cases wired and plated anyway. Aside from the multiplied risk of infection, local and general, the final results include many conditions worse than the original fracture, such as rarefaction and subsequent resection.

In recent years, when nine out of every ten doctors accounts himself capable of doing any kind of surgery, regardless of the local conditions and training, there is too great a tendency to operate, being lured on by the cheers of the populace who wildly applaud the man who operates, and pay little heed to the humble prac-

itioner who may be possessed of a rare discretion and greater discernment of the best interests of his patient.

In justice to the profession, I do not believe they are entirely to be blamed for this wild surgical rampage, since the colleges, after laying a fairly good foundation in anatomy and the ologies, proceed to teach "internal medicine," therapeutic nihilism, and then serve surgery in every conceivable style for the final three years of the course. Having graduated, the young doctor believes that there is nothing else to be done save that which surgery offers. He feels that he is eminently qualified to do the most difficult surgery, which, to him, simply means the ability to operate. He is willing to accept a position in some hospital, provided he is permitted to do the major surgery and if he is paid a salary commensurate with his ability.

No man has a right to attempt surgery who first has not served a prolonged apprenticeship in general practice, and who has not stood across the table and assisted some competent surgeon for weary months, better, years, and who has not followed up the results of these operations in the wards. To be a real good surgeon, he should know in after years what happened to those patients he saw operated upon.

The possession of manual dexterity and mechanical skill do not *per se* make a surgeon. I find that there is a woeful lack of good surgical judgment—of the where, when, when not to, and various limitations of surgery.

Until recently, I employed the open method of treatment and occasionally broke the other surgical commandments by wiring, plating, and otherwise insulting nature, but I discovered that those patients who had the least washing, scrubbing and handling got along best. These observations lead me to use the above-mentioned technique, with the most gratifying results.

I herewith present a brief record of the last four cases which I recall having treated (together with the hospital charts):

Case 1.—C. B. F., white, aged thirty-five, engineer. Admitted June 3rd, 1912, about 8 A. M. Compound fracture of the tibia and fibula of left leg a few inches below the knee, together with lacerations of the soft tissues on the external surface of the thigh; laceration, contusion and maceration of the skin at other points on the leg. Treatment was pursued as described above. He was immediately put up in plaster. Temperature ran from 101° to 101.6°

for three days. Patient suffered great pain. Inspection showed wound to be in good condition, so dressings were not disturbed. Most of the pain was likely due to the skin injuries, rather than the fracture. First case was removed on July 9th and a new one applied. Found wounds all healed, and apparently there was strong bony union, but patient was not allowed to go home because of an unfortunate accident in the nature of a pressure ulcer over the heel which should not have occurred. Left hospital August 16th, 1912, with a good result, so far as fracture was concerned, but with the same miserable ulcer.

Case 2.—J. E., colored, aged thirty-eight, laborer. Admitted September 25th, 1912. Compound fracture of leg in lower one-third. Wound treated as described, and immediately put up in plaster. Reactionary temperature for six days. Patient had no further pain after leaving operating-room. Wound healed clean, and bony union was satisfactory. Discharged November 9th, 1912.

Case 3.—W. F., white, aged twenty-two, laborer. Referred to me three days after the injury. Admitted November 5th, 1912. Compound fracture of the left femur about four inches above knee. Numerous other injuries. Wound had been sutured by attending physician down in the log woods of North Carolina, covered and not further handled. Patient was iodined, clean dressings applied, and put up in splints because of the great swelling and extensive injuries which were beginning to freely discharge from the sloughs. Wounds were frequently dressed. A well-padded cast, which incorporated metal strips, was applied to the leg, to which extension was made. The leg was kept in position with sand bags. Patient was discharged on Christmas day. Result: A strong union, good position, but more shortening, perhaps, than is customary.

Case 4.—H. S., white, aged twelve, school-boy. Admitted June 3rd, 1913. Fell under and was crushed by an asphalt wagon in the dust of a dirt road. Compound fracture of femur and many other injuries. Usual treatment, extension and sand bags. Result: Practically perfect. Discharged July 6th, 1913.

The most troublesome cases and the ones which exact the greatest ingenuity are those which are complicated with contusions and macerations of the adjacent structures.

3501 Colonial Avenue.

TUBERCULOSIS OF THE GENITO-URINARY ORGANS.*

By WADE H. ATKINSON, M. D., Washington, D. C.

The world is all alive today on the subject of tuberculosis. Perhaps no subject has ever caused a more powerful binding of brains and energy than the one that now is causing the study of tuberculosis in its every form. The scientist has not bent his energy alone, for it is common now to have the ordinary newspaper reporter arrange and cause to be given most noted clinics; and the laity is becoming quite familiar with the invasion by tuberculosis of different organs and with treatments. When a subject has reached the importance this has, we find the medical literature voluminous, and the daily press with blazing headlines on tuberculosis seems sufficient excuse to present, what I think, an interesting case. A long tedious paper would be necessary to go carefully into the pathology, etc., and it is my intention, therefore, to give only a short review of tuberculosis of the genito-urinary tract, limiting the subject to the testicle, kidney, the bladder, and back to the other kidney,—this being the course of invasion in the case I am going to present to you.

Tuberculosis of the testicle and epididymis is the most frequent inflammation of these parts, except that from gonorrhea. It begins as a rule in the epididymis, and later extends to the testis proper. It usually gains access to the epididymis through the blood. There is almost always a tuberculosis existing elsewhere in the body, and the bacilli, escaping from such foci, enter the blood and find a most acceptable breeding place in the epididymis. Trauma, gonorrheal epididymitis, and excessive sexual activities favor its development. It is more frequently noticed between the ages of fifteen and fifty.

It seems to be an accepted fact that the so-called primary tuberculosis of the genitourinary organs can begin at a number of points, namely, the kidney, prostate, bladder, and testis. The process may extend, involving the scrotum, etc. The disease usually destroys the functions of the organ and is very apt to extend to the other testicle,—causing sterility.

The diagnosis is not usually very difficult. The subacute history, the marked involvement of the epididymis, the nodular thickening of the vas, the possible finding of evidence of the

same process in the seminal vesicles by rectal examination, the presence of fistulae when they exist, the age of the patient, and the history of tuberculosis in the family, etc., all aid to make the diagnosis clear.

Treatment is a matter of dispute. Some surgeons favor general hygienic treatment and oppose operation; others believe early castration is indicated; still others have strongly urged resection of the involved epididymis with retention of the testicle. Perhaps the best treatment in cases involving the epididymis alone is to remove it; if the testicle is involved, remove the testicle and cord as high as possible. If the testicle alone is involved, a wide exploratory operation should be performed. In cases where other tubercular lesions exist, the open air and hygienic treatment should be carried out. It is interesting to note a cure in forty per cent of cases after single castration, and about fifty per cent after double castration, leaving ten per cent to die with tuberculosis of the genito-urinary organs or general tuberculosis.

Fresh air and outdoor treatment should always be urged; it has cured many cases in Nothnagel's opinion; and its beneficial effect has been observed upon other forms of tuberculosis. Operated cases should of course have this benefit as well as that of good rich diet.

Miliary tuberculosis of the kidney does not show clinical symptoms, nor does it have to be treated surgically. It is, says Keen, always bilateral. The chronic nodular caseating and ulcerating tuberculosis, or old-time scrofulous kidney, has been demonstrated by surgery to be, as a rule, hematogenous in character, is unilateral, and remains so for a long time. The right kidney is oftener affected. Miliary tuberculosis occurs more frequently in children. Usually the other kidney becomes involved later. Instances of primary tuberculosis of the kidney do occur, but they are not common, and infection is nearly always secondary to tubercular foci in some other part of the body,—generally the genitourinary tract—even though slight and difficult to demonstrate. One noticeable fact is that it often occurs in an abnormally movable kidney. It is undoubtedly true that the kidney may be infected from a tuberculosis of the lower generative organs, especially from the bladder, prostate and ureter, though it is more common for an infected kidney to spread the disease downward.

*Read before the Medical and Surgical Society of the District of Columbia, May 1, 1913.

The case I am going to report seems to show an upward infection from the testicle to the kidney; then the other kidney became infected, and lastly the bladder. But, on the other hand, the patient came from a tubercular family, and there may have been a tubercular focus in some other part of the body that has not been demonstrated; thus, the infection may have been carried to and deposited in these organs at different times through the blood. Nothnagel says it is theoretical rather than based upon actual demonstration, but he believes tubercle bacilli may be taken from any point of the periphery, lungs, gut, or surface lesion, find their way into the blood stream, and that finally, in being eliminated by the kidney, may effect a settlement in such a susceptible organ.

If this theory be true, it is rather surprising that our old consumptives do not become tubercular in all parts of the body. Perhaps within our blood there is an anti-tuberculin which, if properly separated, might make a more potent serum than that of the turtle.

Diagnosis is important and can be summed up, rather than go into a long symptomatology. Take into consideration the history of the patient, the finding of tubercle bacilli on urinary examination, perhaps also in the blood, ulcerated condition of the bladder, tuberculosis of the lungs, testicle, seminal vesicles or prostate. The confusion between tuberculosis and stone in the kidney is cleared by the X-ray, or the scratching of a parafined tipped bougie passed by a skilled specialist, who will at the same time carefully examine the bladder and the orifice of the ureters with his cystoscope. When the tubercle bacillus is found in the urine, the ureters are separately catheterized and the specimens of each kidney are examined microscopically. The presence of the bacillus demonstrates the affected kidney. The tuberculin test loses its value as tuberculosis usually exists in some other part of the body.

The treatment of tubercular kidney may be given in a few words; it is operative interference when it is unilateral, and sometimes with a slight affection of the other kidney, or when the condition is a part only of a general tuberculosis of the genitourinary tract. If surgical interference is contraindicated, then a change of climate, open air, and a hygienic course of treatment is indicated.

Tuberculosis of the bladder is seldom primary. In the majority of cases, it descends from the kidneys and occasionally ascends from the epididymis. In some instances, however, says Rovsing, when the bladder is already extensively involved, the disease may creep upwards through a dilated ureter to a sound kidney.

The location of the bladder, standing as it does in the path of the flow of secretions from the kidneys downward and from the testes upwards, makes its infection almost assured if tubercular lesions exist in any other part of the genitourinary tract. Infections may come through the blood or lymph channels, or by means of secretions like the urine or semen.

The diagnosis can be summed up in demonstration of tubercle bacilli in the urine, and confirming the ulceration of the bladder by means of the cystoscope which will show the inflammatory or ulcerated condition.

In treatment of tuberculosis of the bladder, the first step is to remove the infecting foci when admissible. If in one kidney, the other functioning, nephrectomy should be performed, when a cure or marked improvement may be expected; but, on the contrary, if the source of infection is not removed, little hope for recovery exists. It is self-evident that the earlier the operation in these cases the better, and, therefore, all the more important is an early diagnosis. Operations on the bladder, such as curettement, catheterization, and excision of ulcers, without reference to the kidney, are almost useless because of the likelihood of reinfection. Permanent suprapubic drainage may occasionally be desirable for the palliation of symptoms where both kidneys are badly diseased, or some other contraindication to nephrectomy exists. Removal of the bladder should seldom if ever be done.

The internal administration of creosote or guaiacol in full doses has been employed beneficially; salol and the salicylates are recommended in those cases where they do not disagree with the stomach or disturb the nutrition, etc.

Keen observed marked relief with the use of air for cystoscopy in tuberculous bladders.

Irrigations are but little service and are often harmful. Without extreme care, introducing instruments into the bladder may produce a mixed infection. Solutions of nitrate of silver and potassium permanganate, which are

useful in ordinary cystitis, increase irritation in the tuberculous form. Injection of an iodoform emulsion in olive oil (10%) has been used with a great deal of comfort. This emulsion floats on the surface of the urine, the patient endeavoring to retain the material in the bladder as long as possible by carefully passing his urine from beneath it.

Rovsing recommends, in stubborn cases that persist after nephrectomy, the following procedure:

"After washing the bladder free from pus, 50 c. c. of a warm freshly prepared six per cent solution of carbolic acid is injected. The solution is retained three or four minutes when it returns through the catheter quite milky in color. This is repeated three or four times, until the fluid returns fairly clear, after which there should be no further irrigation. In order to lessen the pain, which is severe for two or three hours, a rectal suppository is employed, containing about one-third of a grain of morphine."

This treatment is repeated every second day at first, and then the intervals are lengthened until a cure results, which requires at least a month, and often much longer. Fourteen out of nineteen cases were cured in this way.

Mr. P. E., aged 42 years, married, proof reader, was first seen June 26, 1912. He complained of frequent urination accompanied by pain, localized in the perineum, during and after the act.

The following history was obtained:—His father and mother both died of tuberculosis of the lungs. No other member of the family has tuberculosis as far as known. In early life he was strong and healthy. He has never had any venereal infection.

At the age of 22 years the right testicle, without apparent cause, became enlarged. This was considered to be tuberculous and was removed. Two years later the left testicle was similarly affected and orchidectomy was performed. At the time of the second operation he also had a painless swelling in the left groin and this was cleaned out at the same time. The wound healed in the usual time.

At the age of 35 years he first noticed symptoms referable to the urinary apparatus,—frequent urination with tenesmus. The usual diagnosis of "cystitis" was made, based upon the symptoms, and vesical irrigations were em-

ployed. This treatment failing to give relief after a thorough trial, a more careful examination was made, into the cause of the vesical irritation by a specialist. This examination showed the right kidney was affected with tuberculosis. Nephrectomy was advised and accepted. The right kidney was removed in July, 1905.

Following this third operation the relief of the vesical irritation was very marked and most gratifying. He continued well for five years; at the end of this time, or about two years ago, he began again to have frequency and burning on urination. The frequency of urination is not continuous but comes on in attacks and is associated with pain in the perineum. At times the pain is severe and the frequency is marked. He has lost no time from his work on account of his trouble until the past few days when the pain and distress have been so marked and continuous as to make it necessary for him to remain at home.

He has had no fever, no night sweats, and there has been no loss of weight. About two months ago he noticed for the first time a blood clot in his urine. Since then hemorrhage has not been noticed. The patient sought relief from the distressing frequency and the perineal pain associated with urination. He was sure that he had another "touch of prostate trouble."

Examination.—General condition apparently good; good color; well nourished. Both testicles are absent from the scrotum, which is small and shrivelled. Penis is normal. Urine cloudy, due to abundant pus and considerable number of red blood cells. Specific gravity normal. A centrifuged specimen was stained for tubercle bacilli which were readily found.

Cystoscopic examination.—The bladder presents a characteristic picture of tuberculous cystitis. Several tuberculous ulcers are seen in the base of the bladder surrounded by a zone of hyperaemia. These are most numerous about the shrivelled, wizened right ureteral orifice. The left ureteral opening is wide, patulous, and situated on a prominent papilla. From this opening a large swirl of turbid urine is seen to escape. A catheter was passed a few centimeters into the left ureter for the purpose of obtaining urine directly from the left kidney uncontaminated by the bladder. The urine so obtained was cloudy and contained pus and

blood. A stained smear contained tubercle bacilli.

It was apparent, therefore, that the only remaining kidney was tuberculous and that the bladder infection was secondary to kidney involvement. While the symptoms were entirely vesical—frequency and pain being due to a tuberculous cystitis—the vesical condition was secondary. The primary focus was in the remaining kidney.

Further operation was, therefore, out of the question as the only operation for tuberculosis of the kidney is nephrectomy. Partial nephrectomy is never indicated or justifiable in this condition.

Treatment.—Vaccines, tuberculin rest or residue, offer the greatest hope. In this case. "T. R." vaccine was used in serial dilution Nos. 1, 2 and 3. Increasing the dose each time 2 minims, this remedy was given one week apart. Had no reaction but patient improved steadily. At the time of starting treatment patient could hold the urine about 15 minutes. At the conclusion of taking No. 3, which was about 7 or 8 months, he could retain his urine about 1½ hours.

Proceedings of Societies, Etc.

MEDICAL AND SURGICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

Reported by LEWIS C. ECKER, M. D.

This Society met May 1, 1913, and, after the usual routine of business, proceeded to the regular order of scientific discussion. Under the heading of

Presentation of Specimens.

Dr. Atkinson exhibited a calcareous tumor from the muscle of the thigh. The patient was a female, 21 years of age. Fourteen years ago soreness was noticed in the thigh muscle. Six months later a small lump appeared. This, in two years, had reached the size shown in specimen—about as large as a base ball. There was no history of trauma. X-ray showed the tumor was not attached to the bone. Removal was done without difficulty.

Dr. Sowers, in discussing the case, said he had seen a similar case in a breast following injection of calcium lactate. He suggested this

might be an old inflammatory process in which calcification had taken place.

Case of Pemphigus.

Dr. Hazen reported a case of this character, in which the eruption was associated with a middle ear abscess and vomiting; the urine contained a large amount of albumin and red blood cells. At autopsy colon bacilli were found throughout the body. In this case the vesicles were auto-inoculable.

Dr. Parker had found the colon bacillus frequently where the autopsy had been delayed.

Dr. Hazen stated that autopsy was done 12 hours after death; that the colon bacillus was found repeatedly on examination of the urine before death.

Tumor of the Sternum.

Dr. Hagner reported a case of tumor of the sternum, in which removal was done, but the wound did not heal. This was followed by a second tumor—hard and painless—lower down the sternum. Sarcoma was suspected; but there was a double plus Wassermann and signs of scarring of the soft palate, suggesting syphilis.

Dr. Kerr had seen a similar case in which the rib was involved. A large section was excised, and sections (examined by several competent pathologists) showed what was diagnosed as a small round-cell sarcoma. Patient returned in two months with a similar growth four ribs lower down. Removal was done in a radical manner. Microscopic examination was made as in the former section. Case was seen ten months later with a perforated soft palate. On comparison of slides from a syphilitic tumor and a small round-cell sarcoma, the similarity was striking.

Dr. Hagner, in closing, said that the X-ray showed a suspicious shadow over the lung, and suggested the possibility of lung syphilis as well, though no physical signs were present.

Dr. Atkinson read the essay of the evening, taking for his subject.

Tuberculosis of the Genitourinary Organs.†

DISCUSSION.

Dr. Hagner, in opening the discussion, said that a large percentage of tuberculous testicles are secondary to tuberculosis in some other part of

the genitourinary tract. The operation of choice in tuberculosis of the testicle is epididymectomy. Tuberculosis of the bladder is always secondary to tuberculosis of the kidney. If one kidney is involved, the bladder condition will clear up with nephrectomy. Genitourinary surgeons think tuberculosis of the kidney nearly always primary. In a series of 89 autopsies of patients dying of pulmonary tuberculosis, only one case of tubercular kidney was found. Ascending infection is rare, being nearly always descending. In a large percentage of the cases, bacilli can be demonstrated in the urine; if not, animal inoculation should be tried. Extension is probably along the lymphatics. It is rare to find tubercular ulcers in the ureters. The speaker referred to a case where the bladder involvement was large and only small in the kidney, but the bladder condition cleared up rapidly after nephrectomy. He had also had one case where the tubercle could only be made out microscopically. Early diagnosis and operation offer the only hope.

Dr. Fremont Smith said it had been recognized almost directly since the discovery of the bacillus tuberculosis, that this organism invades the blood stream in cases of the miliary and chronic type in human beings. *Weichselbaum*, in 1884, succeeded in demonstrating the bacillus in the blood of three who had died from miliary tuberculosis. According to *Kennerknecht*; *Meisel*, *Sticker*, and *Liebmann* got a positive result in the blood of the living. Since these experiments were not confirmed by the work of *Ewald* and *Mikulicz*, and as the method was incipient, further attempts remained for a long time untried. The question was taken up again in 1903 by *Jousset* who was able to prove, by a more perfect method of handling blood-cultures, the presence of the bacillus in the blood of 11 out of 35 cases of tuberculosis. Among these were three cases of primary bacillæmia. About the same time, working independently, *Besancon*, *Griffon*, and *Philibert* obtained positive results.

Through animal experimentation, *Ludke* accomplished the same in three instances, as also did *Liebermeister*, in lung-tuberculosis, between the first and third stages.

Staubli greatly advanced the proofs by his work.

Various authors, among others *Lippman*, testify to having confirmed the results of *Schmitt*

ter, who by an improved staining method, found tuberculosis bacteræmia in 12 out of 30 instances.

Up till recently, the proof of the bacillus in the blood has been largely confined to the advanced cases.

In 1909 *Rosenberger* found the bacillus in the blood of all of 50 cases examined; *Kurashige* in all of 155 cases, among which number 41 were in the first stage of the disease.

While he was studying 34 apparently well people, in 20 of whom the tubercle bacillus was found in the blood, one of these persons was attacked by pleurisy, and the other by an initial hæmoptysis.

Kennerknecht using *Kurashige's* method, examined the blood of 120 children, and his conclusions were as follows:

1. Of the 120 children examined, 109 (i. e., 91%) had the tuberculosis bacillus in the blood. 100% of 68 children undoubtedly tuberculous demonstrated the same. 18 cases out of 20 suspected of tuberculosis (i. e., 90%), and 23 cases out of 31 children who had not been considered tuberculous (i. e., 74%), all showed the same condition.

2. The direct establishment of the presence of this bacillus in the blood is of great diagnostic importance, and in the hands of experts, superior to *von Pirquet's* method.

3. The bacilli are found in the blood in the earliest stages of the disease, where clinical symptoms still are lacking.

4. In cases of guinea pigs, infected via peritoneum, the first and most extensive pathological changes take place in the bronchial glands and in the lungs. This speaks for a hæmatogenous, or, possibly, lymphogenous propagation of tuberculosis in the body.

5. In the animals used for experiments, the tubercle bacillus is found constantly in the blood, in the lungs, and in the bronchial glands.

6. If tubercle bacilli circulate continually in the blood, there is a possibility of placental transmission to the offspring. In a pregnant animal, the presence of these bacilli in the placenta, liver, and spleen of a previously dead fetus was shown.

Foster states that he finds "acid alcohol resisting bacilli in the blood." "They are demonstrable in a large percentage of tuberculous individuals." "They are few in number, and too much emphasis cannot be put upon the necessity

of continued search to demonstrate them." He thinks probably that these bacilli are not virulent in most cases, that they are an invasion from local foci "ordinarily killed or attenuated by bacteriolytic conditions in the blood;" but when suddenly thrown into the blood stream in overwhelmingly large numbers, produce generalized military tuberculosis. And, finally, he says, "I believe that a more or less constant invasion of the blood by tubercle bacilli occurs in all forms of advanced tuberculosis."

Lydia Rabinowitch demonstrated the presence of these same bacilli in the blood of guinea pigs after the administration of tuberculin, the animals having previously failed to show them.

Bachmeister also demonstrated tubercle bacilli in the blood.

In 1909, Brem, on the Canal Zone, cast doubt upon the work of Rosenberger of the same year, by finding acid fast bacilli in distilled water, calling these "bacilli citratis"; and he warned investigators against the contamination of distilled water with the acid fast bacillus. At the end of his article, however, he states that he found repeatedly tubercle bacilli positive in the blood of various patients, in fever patients who were "negative to the typhoid colon group." He also found it before and after death in spinal meningitis, making many controls. He found the same bacillus in the blood, stools, urine, pleural effusion, and in a case of spinal meningitis, having eliminated the possibility of contamination. But his first discovery of contamination seems to have thrown doubt in his mind as to whether these bacilli, just mentioned, were actually tubercle bacilli; yet he comes so near to a certainty that they are the true bacilli tuberculosis, that he states his investigations have been "all but convincing of the presence of tubercle bacilli in every case of tuberculosis."

Finally, in this imperfect review of the abundant literature of the subject, we come to an article by Rogers and Murphy, in which they state they have found bacilli morphologically identical with tubercle bacilli in 26 incipient, 20 moderately advanced, and 4 far advanced cases of pulmonary tuberculosis, and they were also able to demonstrate the same bacilli in 5 apparently normal individuals. Controls were made in all instances, to avoid contamination, both in the distilled water and all chemicals used, as well as a series of tests in order to eliminate the possibility of crystals. Their work

appears to have been scientifically accurate; and, in connection with what has been previously done, especially in Germany, there appears to be no doubt, as Craig of the Army confirms in a private conversation, that tubercle bacilli circulate in the blood stream in a very large number of cases of tuberculosis, and it is only a matter of patience and skill, which determines their findings.

Dr. Parker had been struck by the great infrequency of tubercular kidney among patients with pulmonary tuberculosis. In a large number of autopsies at the Lakeside Hospital, Cleveland, where cases of tuberculosis are taken, he had never seen a healed tubercle in the kidney, though 55 to 60 per cent. showed scars. Some reports give as high as 99 per cent. of cases showing scars somewhere. These were in adults.

Dr. Fuller said that suffering in advanced cases is great, especially when the trigone is involved. He accentuated the remarks of *Dr. Hagner*.

Dr. Gwynn thought inoculation of guinea pigs of great help in diagnosis, and that the tuberculin test was helpful when negative. The use of autogenous vaccine has brought good results.

Dr. Kinyon had seen scars in the cortex of kidneys, but was unable to state whether tubercular or not. In one case he found a small calcareous nodule in the kidney, though he was unable to state the nature of the body. In a series of about 200 autopsies made at the local Tuberculosis Hospital, he rarely found a tubercular kidney; but in a general military involvement the kidney usually showed tubercles, at times so small as to be microscopic. When found in the kidney, they were also found in the liver and spleen. Had 5 cases of involvement of the suprarenals independent of the kidney. He stated that Rosenberger's findings of the bacillus had been found to be in error. *Anderson* and *Frost*, of the Public Health Service, were unable to find the bacilli in the blood of cases in all stages either by the direct or by animal injection. These cases were from the Tuberculosis Hospital. The speaker himself had failed to isolate the bacilli in the blood. He did not deny that such could be done. In his work with animals he found that the peritoneal lesions were earliest and the bronchial glands latest.

Analyses, Selections, Etc.

Recent Advances in Our Knowledge of the Etiology of the Infectious Diseases.

Dr. John F. Anderson, Director Hygienic Laboratory, U. S. Public Health Service, Washington, D. C., in a lecture before the Richmond Academy of Medicine and Surgery, February 10, 1914, said that recent advances in our knowledge of the infectious diseases have been of more practical value in their diagnosis and prevention than in their cure. Our knowledge of the etiology of the infectious diseases has advanced, not uniformly but by leaps and bounds, as new methods have been developed and new methods have arisen. With the evolution of a bacteriological technic there was a rapid expansion in our knowledge of the specific infections, but in very recent years there had been a lull in this advance of our knowledge of the acute infections. In very recent years, however, as a result of the use of certain methods or agencies of research, the value of which had not been previously recognized, there has been another great advance in our knowledge of this class of diseases. Some of the factors contributing to the recent advances are discussed. The recent additions to our knowledge of poliomyelitis, measles, scarlet fever, whooping-cough, typhoid fever, and typhus fever are discussed in some detail.

Poliomyelitis.—The recent work in this country and abroad which has contributed so much to our knowledge of poliomyelitis is referred to, especially the experimental results, reached by a study of the disease in monkeys. Reference is also made to the recent results of Noguchi and Flexner in cultivating what is probably the specific organism.

Measles.—A brief summary of the prevalence of measles throughout the world and a discussion of its importance from a public health standpoint is made. Previous to 1911 our knowledge of the seat of the virus, its means of exit from the body, and the nature of the virus was very incomplete, but the work of Anderson and Goldberger on measles in the monkey converted what had previously been opinions based on laboratory experiments. The studies based on laboratory experiments. The studies of these workers on measles have given us our

first definite information, based on satisfactorily controlled laboratory experiments, as to the nature of the virus, its means of exit from the body, and the probable avenue of infection. The experimental observations on the duration of the infectivity of the secretion and the probable non-infectivity of the scales is emphasized.

Scarlet Fever.—A brief discussion is made of the recent work on experimental scarlet fever in monkeys. These results show that the inoculation of material from scarlet fever patients into monkeys is sometimes followed by a syndrome which resembled more or less that of scarlet fever in human beings. The disease so produced seems to be caused by the specific virus of scarlet fever, and the streptococcus does not appear to bear any etiological relationship to the disease.

Typhoid Fever.—Reference is made to the fact that, while the typhoid bacillus has been studied for over thirty years, experimental proof that it is the specific cause of typhoid fever has been deficient. The recent work of Metchnikoff and Besredka on experimental typhus fever in the chimpanzee fulfills the postulates of Koch for the etiological relationship of the typhoid bacillus to typhoid fever.

Whooping Cough.—Bordet and Gengou in 1900 reported the observation in sputum from cases of whooping cough of a small bacillus, but it had not been generally accepted that the bacillus was the specific cause of the disease. Recently Mollory and his co-workers have been able to fill the gaps that have been heretofore lacking, according to Koch's law, to show that the Bordet-Gengou bacillus is the specific cause of the disease.

Typhus Fever.—The last appearance of typhus fever in the United States in epidemic form was in New York in 1891-92. Since then, except for occasional cases at some of our larger seaports, it was believed that the disease had disappeared from this country and it has been a subject of wonder to health officers that in spite of the occasional arrival in this country of immigrants infected with typhus, and of many persons from endemic centers of the disease, typhus did not get a foothold in the United States. That this had already been so has been shown by Anderson and Goldberger of the Hygienic Laboratory, by proving that the disease observed and studied in New York by Dr. Nathan E. Brill is identical with typhus.

The disease described by Brill is discussed. The work of Anderson and Goldberger in which they demonstrate the identity of so-called "Brill's Disease" and typhus fever is discussed. Other phases of typhus fever are also referred to, especially the mode of transmission.

Book Announcements and Reviews

The Semi-Monthly will be glad to receive new publications for acknowledgment in these columns, though it recognizes no obligation to review them all. As space permits, we will aim to review those publications which would seem to require more than passing notice.

Marriage and Genetics. Laws of Human Breeding and Applied Eugenics. By CHARLES A. L. REED, M. D., F. C. S., Member and former President of the A. M. A. The Galton Press, Publishers, Cincinnati, O. 12 mo. 182 pages. Price, including postage, \$1.00.

This book has three divisions, the first dealing with general laws of genetics; second, with race poison, and third, applied eugenics. The author states that the book was written with a desire, in some measure, to overcome the ignorance which, in too many instances, keeps innocent victims from protecting themselves and their off-spring from disease and degeneracy.

A Treatise on the Diseases of Women. For Students and Practitioners. By PALMER FINDLEY, B. S., M. D., Professor of Gynecology, College of Medicine, State University of Nebraska; Gynecologist to the Clarkson Memorial Hospital and Douglas County Hospital, etc. Octavo, 954 pages, illustrated with 632 engravings in the text and 38 plates in colors and monochrome. Cloth, \$6.00 net. Lea & Febiger, Philadelphia and New York, 1913.

In commenting on a volume of this size, containing as it does, nearly 1000 pages, it would scarcely be possible for a reviewer, in the limited time and space at his disposal, to do more than give a general impression of the value of such a work. Examination of a number of chapters taken at random, however, leads to the belief that the book is not only thoroughly comprehensive, without needless repetitions, but that the text presents the subject of gynecology about as satisfactorily as might well be expected. The author expresses the opinion that non-operative methods of treatment have not received the consideration they rightly deserve in either text-books or practice, and he therefore devotes more than usual the amount of space ordinarily given to the discussion of such conservative methods as douches, baths, massage, tampons, etc. However, operations, and details

of operations, come in for their full share of attention, and we find nothing lacking to make the book a complete exposition of the subject of diseases of women.

Genito-Urinary Diseases and Syphilis. By EDGAR G. Ballenger, M. D., Adjunct Clinical Professor of Genito-Urinary Diseases, Atlanta Medical College; Editor Journal-Record of Medicine; Urologist to Wesley Memorial Hospital, etc.; assisted by OMAR F. ELDER, M. D. The Wassermann Reaction by EDGAR PAULLIN, M. D. Second Edition Revised. 527 pages, with 109 illustrations and 5 colored plates. Price, \$5.00 net. E. W. Allen & Co., Atlanta, Ga.

We have been pleased in reviewing this work to find so much of real every-day matter discussed, those sections which deal with rare affections and unusual operations, having been purposely written briefly, while much space has been devoted to the treatment of gonorrhœa, prastatic disorders, diagnosis and treatment of syphilis, etc. The section on treatment of incipient gonorrhœa by sealing argyrol in the anterior urethra with collodion has been especially interesting, for the method is new to us, but, according to the authors, 4 or 5 is the average number of days for cure in a large series of cases. In many ways the book appeals to us as a very satisfactory volume for physicians in general practice who treat diseases of this special nature.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M. D., Professor of Materia Medica and Therapeutics, Jefferson Medical College. Assisted by LEIGHTON F. APPLEMAN, M. D., Instructor in Therapeutics, Jefferson Medical College. Volume XV, No. 4, December 1, 1913. 411 pages. Illustrated. Lea & Febiger, Publishers, Philadelphia and New York. 8vo. Paper. Subscription price, \$6.00 per annum.

Clinical Diagnosis and Uranilysis. By JAMES R. ARNEILL, A. B., M. D., Professor of Medicine and Clinical Medicine in the University of Colorado. New (second) edition, revised and enlarged. 12mo., 270 pages, with 83 engravings and a colored plate. Cloth, \$1.00, net. The Medical Epitome Series. Lea & Febiger, Publishers, Philadelphia and New York.

Editorial.

Tuberculosis—To What Degree Is It Spread by Association in Households?

The *U. S. Public Health Reports* for February 20, 1914, in commenting on the above subject, quote from articles by two prominent investigators. The conclusions reached by the first, Dr. Edward R. Baldwin, of Saranac Lake, whose deductions are arrived at largely by an analytical study of experimental work, are somewhat divergent from the conclusions of the second, Dr. Henry G. Lampson, of Minneapolis, who bases his report on the results of a study of the spread of tuberculosis in a given number of families. Extracting from the *Reports*:

"Dr. Baldwin expressed the opinion that adults are very little endangered by close contact with cases of open tuberculosis and not at all in ordinary association, as practically everyone is infected before reaching adult life and by this infection acquires a degree of immunity against reinfection from others.

"In a letter of February 15, 1914, Dr. Baldwin makes the following statement in regard to the subject:

"The conclusions which were contained in this paper related to the relatively slight danger of infection in adult life as compared with childhood. Incidentally, I stated that the fear of infection was grossly exaggerated so far as adults were concerned, but I in no way implied that there was no danger of tuberculous infection. * * * *

"As a result of his work Lampson concluded that the spread of tuberculous infection in families where open cases of tuberculosis exist is greater than it is generally understood to be."

The plan of his investigation was as follows:

"1. Select a given number of families in each of which a case of pulmonary tuberculosis existed at the time of the investigation and which had been living for at least a year prior to the investigation in the home of each of these families.

"2. Prove the case to be one of tuberculosis by the

Details of Lampson's investigations, as recorded by him in a bulletin of the University of Minnesota, December, 1913, are then given, and are followed by his conclusions, which are interesting in the extreme:

"I conclude from the above studies, first, that the spread of tuberculous infection in families where open cases of tuberculosis exist is greater than it is generally understood to be. Sixty-seven per cent of the individuals of these families, excluding the center cases, show evidence of tuberculous infection. In no case where there has been definite proven exposure of a family to an open case of tuberculosis, no matter what precautions have been taken, have I failed to find a spread of infection. In at least 10 cases investigated the infection has spread to the limit of available material. Every member of these 10 families shows evidence of tuberculous infection.

"Second, that in families where no cases of tuberculosis have been found, no matter what the home life or living conditions were, the number of individuals showing evidence of tuberculous infection was small, namely 2½ per cent.

"Third, that in families where cases of latent tuberculosis exist, the spread of infection is not as great as in families where open cases of tuberculosis are found, 22 per cent against 67 per cent.

"Fourth, that in families where healed cases of tuberculosis are present, the spread of infection is less than in families where open cases exist, 33 per cent against 67 per cent.

"Fifth, that in families where no tuberculosis is found, the number of individuals showing evidence of infection is very small (2½ per cent), in comparison with the families in which open, latent, or healed tuberculosis exists."

The question of spread of tuberculosis in families has, in recent years, we believe, been treated far too lightly by physicians generally. The subject is often dismissed by a statement to the family that as long as the patient takes proper care of his sputum, those living with him need have no fear. But, while such care by the consumptive is beyond question a long step in the right direction,—and those who neglect it are a menace of serious importance,—there are many reasons to believe an assertion so broad cannot be sustained by facts.

The great bulk of tuberculous patients are attended at their homes, as comparatively few, for pecuniary reasons or otherwise, are able to go to a sanatorium. The larger number of these can be kept in the open for the greater part of the twenty-four hours, when, with the usual precautions on their part, they are less liable to spread the infection than if living in-doors. But the environment of the patient treated on the back porch at home is less satisfactory than one at a sanatorium. He

becomes lonesome and depressed in being by himself, nor does he stand the extremes of weather, especially on bleak wintery days as well as the patient who can see others about him taking the same "fresh air treatment." He longs to be with other members of the family "for just a little while," and finds occasion often to take advantage of opportunities to go inside. Ambulant cases commonly go to their meals in-doors at sanatoria as well as at home, though in the latter instance the inclination is probably greater to sit around for a time before going out again. Many cases are treated in their rooms with the windows open. But, as a matter of fact, most patients are in the house for varying—commonly short—periods each day, and it is likely just these periods, during which the patient may not be consciously careless, when the infection is most apt to get in its worst work. Every care possible may be taken of the sputum, but probably without warning and before he can raise his hand to prevent it, a little plug of germ-laden mucus may be expelled on the carpet, or fine bits of spray (which have been proven to contain the bacilli) be projected into the air "in coughing, sneezing, and even during conversation." And so, with every reasonable precaution, it would seem that, in intimate association of the consumptive with others, there lurks a danger to be dreaded, regardless of the refinements by theorists. Clinicians will, we are convinced, find the conclusions of Lampson based on fact.

Radium Discussed at the Society of Ophthalmologists and Otologists.

On February 6th, a symposium on radium was held under the auspices of the Society of Ophthalmologists and Otologists, of Washington, D. C., at the University Club, Dr. J. J. Richardson presiding. Dr. J. A. Holmes, Director of the U. S. Bureau of Mines, spoke on "The Resources and Mining of Radium," describing the known radium deposits of the United States which are found chiefly in Colorado and Utah. He exhibited various ores containing uranium, vendium and radium, and stated that there is a possibility of a new radium-producing plant being established in Colorado.

Prof. William Duane, of Harvard University, delivered an address on "The Chemistry and Physics of Radium." He said that Har-

vard students are at this time using radium emanations rather than pure radium in medical applications, and warned scientists, in the prosecution of their researches, to be influenced neither by the wave of enthusiasm now sweeping the country in regard to the use of radium nor by the wave of reaction which is sure to follow.

Dr. Robert Abbe, a New York surgeon noted as a leader in the use of radium, gave the principal address of the evening on "The Therapeutic Uses of Radium." He exhibited a "radium quill" which he has devised for injecting radium into the tissues, and illustrated his talk with casts and photographs showing the condition of patients before and after treatment with radium. He warned his audience against "the dream of universal cure", stating that a number of years may be required before scientists and surgeons have experimented sufficiently with radium to bring it into general and successful use in the treatment of cancer. Following the literary program, a buffet supper was served in honor of the speakers and a large number of invited guests.

The Tri-State Medical Association of the Carolinas and Virginia

Met in Wilmington, N. C., February 18th to 19th, for their sixteenth annual meeting, Dr. Southgate Leigh, Norfolk, Va., presiding. The attendance was about 175, and 54 new members were enrolled. The papers were interesting and instructive. Invited guests included Drs. J. A. C. Gerster, New York; W. P. Carr, Washington, D. C.; Thayer, Baltimore; Haggard, Nashville; Beckman, Rochester; Hoke, Atlanta, and Harris, Mobile. The social program included a reception by Wilmington physicians, river trip and oyster roast, trolley and automobile rides around the city and adjacent country.

The following officers were elected: President, Dr. E. C. Register, Charlotte, N. C.; vice-presidents, Drs. J. Allison Hodges, Richmond, Charles T. Harper, Wilmington, and F. H. McLeod, Florence, S. C.; new members of executive council, Drs. Southgate Leigh, Norfolk, and T. T. Tayloe, Washington, N. C., and secretary-treasurer, Dr. Rolfe E. Hughes (re-elected), Laurens, S. C.

Greenville, S. C., was selected for the 1915 place of meeting.

American College of Surgeons.

At the meeting of the Board of Regents of the American College of Surgeons, in New York City, January 9th, all officers were re-elected. Dr. J. M. T. Finney, Baltimore, is president, and Dr. Franklin H. Martin, Chicago, general secretary. At this meeting, there was discussion as to a permanent home for the College, several cities being suggested, it being the sense of the committee that some other city than Chicago should be selected.

The object of the College is to seek the development, exemplification and enforcement of the highest traditions of surgery, by promoting in the individual surgeon unselfishness, honesty and the highest welfare of his patient. More than 2,000 applicants for fellowship had been filed before the November meeting of the College, 1,057 being admitted to fellowship at the first convocation. A large number on file will be admitted when they have been considered by the Committee. The next convocation for admission of Fellows will be held in Philadelphia on the evening of June 22nd—Monday of the week of the A. M. A. meeting. The annual meeting will be held in November, 1914, the date and place of meeting to be named later.

Virginia Board of Health Plans to Supply Doctors.

The State Board of Health announces the opening of a register in its offices for the listing of physicians who wish to move and for the convenience of localities which stand in need of doctors. Free access will be given this register by all inquirers and efforts will be made to prepare a complete list of those sections of Virginia where the needs of the public demand more physicians. For this reason, physicians who wish to change their residence, or who wish assistants or substitutes, etc., should promptly send their names and a statement of their wishes to the offices of the Board in this city.

Married.—Dr. R. Sumter Griffith and Miss M. Maggie Matthews, at Afton, Va., February 18, 1914. At home at Basic City, Va., after April 1st.

Dr. Tom A. Williams,

Washington, D. C., was a recent visitor to this city for professional and social engagements.

Catawba Sanatorium Lost Only 3 Patients Last Year.

In the last annual report of the State Health Commissioner, by error in printing, Catawba Sanatorium was charged with the death of 31 patients for the twelve months. This was a typographical error, as only 3 patients succumbed to consumption during the year covered by this report.

Dr. Meade Ferguson Resigns.

Dr. Meade Ferguson, who has been associated with the Virginia Health Department as State Bacteriologist for the past six years, has tendered his resignation to become effective April 15th. The vacancy caused by his resignation has not yet been filled. Dr. Ferguson leaves his present position to become editor-in-chief of the *Southern Planter* to which he has been a frequent contributor, and will also be consulting bacteriologist for a New York biological laboratory.

Merger of Virginia's Medical Schools De- feated.

The Board of Visitors of the University of Virginia, at a meeting February 18th, voted against the merging of the medical department of the University with the Medical College of Virginia. It is announced that this action defeats the hope of getting the proposed endowment from the Carnegie Foundation for the Advancement of Learning, which was dependent upon there being but one medical school in Virginia.

Dr. Edgar Cooper Person,

Of Pikeville, N. C., while on his professional rounds on February 19th, was thrown from his buggy in a runaway accident near Pikeville, and painfully hurt. He sustained a compound fracture of the nose and the breaking of both bones in his lower left arm.

Hookworm Disease in Texas.

It is announced that of 15,000 school children examined in southern Texas, 49 per cent were found to have hookworm disease. Thirty-two per cent of the adults examined were infected.

Instruction in Sex Hygiene Prohibited.

The Montclair, N. J., school authorities have issued orders forbidding the teaching of sex hygiene in the public schools of that city, and also prohibiting teachers from lending literature on the subject to pupils.

Dr. Benjamin K. Hays,

Oxford, N. C., is attending the meeting of the Council of Education of the A. M. A., in Chicago, as a representative from North Carolina.

Dr. Biggs Honored.

In recognition of his twenty-six years of splendid service as general medical officer in the Department of Health of New York City, Dr. Hermann M. Biggs was tendered a testimonial dinner by two hundred friends and colleagues, themselves representative men, on February 7th, the occasion of his retirement from active service.

Proof of Importance of Vaccination.

The fact that 1,444 of the 1,613 cases of smallpox reported in Michigan during 1913 were stated to have been people who had never been vaccinated should be sufficient evidence of the efficiency of vaccination.

Cerebrospinal Meningitis in West Virginia.

On February 12, 1914, it was reported that 9 cases of cerebrospinal meningitis had been notified at Rainelle, Greenbrier County, W. Va.

The International Society of Surgery

Will hold its fourth congress in New York City, April 13-16, 1914. Dr. Joseph P. Huguot, of 40 East 41 Street, New York City, is American secretary for the Congress.

New President of Johns Hopkins University.

Dr. Frank J. Goodnow, Eaton professor of political science in Columbia University, and now constitutional adviser to the Republic of China, has accepted the presidency of Johns Hopkins University, succeeding Dr. Ira J. Remsen who resigned nearly two years ago.

Dr. Goodnow will be released from his present position in August.

Wisconsin Eugenics Law Unconstitutional.

The Wisconsin law requiring men who wished to marry in that State to present a clean bill of health from a reputable doctor, which became effective January 1st, has been declared unconstitutional by the circuit court. The judge ruled that it was of unreasonable statutory limitation as to physicians' fees, and a bar to the right of persons to marry in that State.

Smallpox in Virginia More Virulent.

Recent reports of smallpox in Virginia indicate that the "mild" form is changing to the virulent, confluent type. As vaccination is the only means of preventing the disease, school trustees are urged to require that all children unprotected by vaccination either be vaccinated at once, or remain away from school.

Although very few cases of smallpox have been reported in Petersburg, the Health Department there, as a precaution against the spread of the disease, has ordered a general house-to-house vaccination, the following physicians being put in charge of the work: Drs. J. E. Smith, E. J. Nixon, C. T. Jones, E. L. McGill, John Mann, and Geo. H. Reese.

Mortality Among Physicians in 1913.

From the *West Virginia Medical Journal* we note that during 1913, 2,196 physicians died in the United States and Canada, which, reckoning on an estimate of 150,000 physicians, would be a rate of 14.64 per 1,000. The age at death varied from 22 to 98, an average age of 59 years, 8 months, and 12 days, the number of years of practice averaging 32. The chief causes of death were senility, "heart disease," cerebral hemorrhage, pneumonia and nephritis. Of the 101 deaths from accident, one-third were due to automobiles.

Smallpox Continues at Niagara Falls.

During the week ended February 7th, 50 cases of smallpox were reported at Niagara Falls, N. Y.

Dr. Lederle's Retirement.

After a service of nearly twenty years in the New York City Department of Health, Dr. Ernest J. Lederle, Commissioner of Health and

President of the Board of Health, tendered his resignation, effective February 1st. He was succeeded by Dr. S. S. Goldwater. Resolutions of appreciation of his work were passed by the Board.

Home for Memorial Hospital Nurses.

The building formerly known as Old Dominion Hospital, this city, is being remodeled, and, when finished, will be used as a home for the nurses of Memorial Hospital, Richmond.

Lexington, Va., Has Good Health Report.

Dr. Robert Glasgow, health officer, Lexington, Va., in his report of vital statistics for 1913, states that there were 68 births and 52 deaths. The death rate per 1,000 was 16.4, or 13.7 for the white population and 20 per 1,000 for the colored. The only case of typhoid fever reported for the year was one imported from a neighboring county for treatment.

Spartanburg, S. C., to Have Pellagra Hospital.

The South Carolina Legislature has appropriated \$35,000 for the establishment in Spartanburg of a State hospital for the study and treatment of pellagra.

Investigation Into Charges of Vivisection.

Senator Gallinger, of New Hampshire, has introduced in the U. S. Senate a resolution calling upon the public health and marine hospital service of the navy for a national investigation of the charges recently reported in New York City. The Senator asserts that while he believes vivisection may be wrongly practiced by some, it is not his opinion that it is so adopted by the great rank and file of the profession.

To Fight Malaria and Typhoid.

Senator Ransdell of Louisiana on the 21st of February introduced a bill in the United States Senate asking for the appropriation of \$50,000 to fight malaria and typhoid.

Sheltering Arms Hospital.

Dr. S. C. Mitchell, president of the Medical College of Virginia, was chief orator on "Founders' Day," February 13th, at Sheltering Arms Free Hospital, this city. The annual report showed that during 1913, 653 patients received treatment in the hospital, 490 from

this city and 163 from other portions of the State. Total expenses amounted to \$11,696.41. The sources of income are interest on an endowment fund, \$2,500 from the city, and various charitable contributions.

Field Hospital To Be Organized in Virginia.

Capt. Giles B. Cook, Medical Corps, Virginia Volunteers, has been assigned, by Adjutant-General Sale, to the work of organizing a field hospital in this city as an adjunct to the Virginia militia. It will be the first of its kind to be established in conjunction with the organized militia of any Southern State. The hospital will be wholly under canvas, and will be large enough to accommodate 108 patients. Upon its organization, Capt. Cook's rank will be advanced to that of major, and two captains and two lieutenants will later be selected to assist him. Lt. Col. J. F. Lynch, Norfolk, Surgeon-General Virginia Volunteers, is actively working in the interests of this hospital.

Wanted—Position as anæsthetist in a private or general hospital. Am a graduate registered nurse, with a year of post-graduate instruction at the Post-Graduate Hospital of Chicago. Can furnish reference as an anæsthetist. Address, *F. L. D., care this journal.* —(Adv.)

Obituary Record.

Dr. Roswell Park,

Of Buffalo, N. Y., one of the most noted surgeons of this country, died at his home in that city, February 15th, aged 62 years. He was a graduate of the Northwestern University Medical School, of Chicago, in 1876. Dr. Park was prominently identified with a number of local and national medical organizations, and was professor of the principles and practice of surgery and clinical surgery in the Medical Department of the University of Buffalo.

Dr. John R. Dillard,

For many years one of the most prominent physicians of Henry County, Virginia, died at his home in Spencer, Va., February 20th. He was eighty-six years of age and had retired from practice several years ago. His second wife and nine children survive him.

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Original Communications.

SIMPLE METHODS IN CARDIAC DIAGNOSIS.*

By ARTHUR D. HIRSCHFELDER, M. D.,
Minneapolis, Minn.

Professor of Pharmacology, University of Minnesota.
Recently of Johns Hopkins University.

Under the leadership of Mackenzie and His and Moritz and Einthoven, we have come in the last decade to look at hearts from entirely new

that if we were to rely upon these instruments alone, many and indeed the greater number of cases would remain entirely undiagnosed; and the question therefore arises, have we learned with our instruments of precision any facts which will lead us to short cuts to a more accurate diagnosis by the application of the simpler methods of physical diagnosis.

How well the bulky instruments of precision may by ingenious methods be replaced by

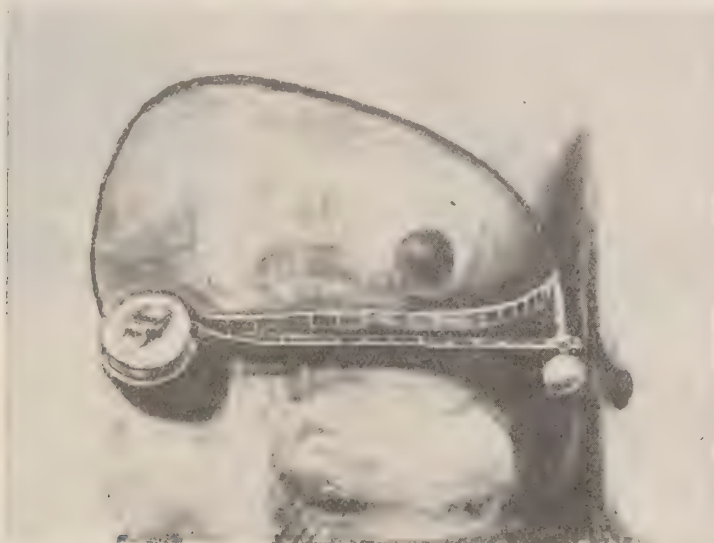


Figure 1. Tape measure with ordinate rod applied to the chest.

standpoints and have come to search for our diagnoses with the polygraph, the electrocardiograph, and the X-ray rather than with the eye and the stethoscope.

But even those of us who have followed in the path of these great leaders in the use of these accurate but cumbersome instruments of precision must realize that these are for the hands of the few and not for the many; and

equally accurate simple procedures and portable apparatus has been shown us in our determination of blood-pressure in which we have passed from the graphic method with the cumbersome apparatus of Erlanger to the equally accurate auscultatory method of Korotkow with the pocket aneroid sphygmomanometer. It is in the interest of the general practitioner rather than of the specialist who has at his command a complete armamentarium of apparatus for cardiac diagnosis that I take the liberty of present-

*Read by title before the forty-fourth annual meeting of the Medical Society of Virginia, at Lynchburg, October 21-24, 1913, as a part of the symposium on the Heart.

ing a few of the simpler methods for the physical diagnosis of the heart.

Ever since Moritz introduced the orthodiagraph it has been evident that the measurements of the heart by the X-ray differ from those obtained by percussion and that this discrepancy applies chiefly to the left border of the heart. This is due to the fact that with the X-ray we make out the projection of the heart shadow upon the flat plane of the screen or plate, whereas in the percussion of the relative dulness we measure the outline by percussion around the chest, and we are thus comparing a curve with its abscissa. This curve depends upon the cur-

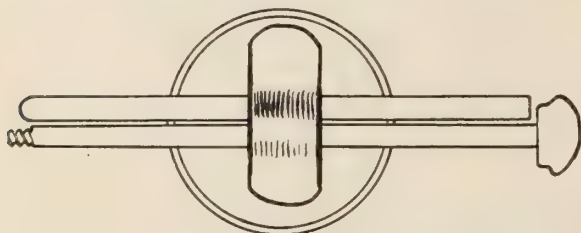


Fig. 2. Tape measure with ordinate rod folded up for carrying in the pocket.

vature of the chest, and its length may differ from its abscissa by seven or eight centimeters, especially in the large hearts of aortic insufficiency. The abscissa of the curve around the chest wall (the ordinary measurement to the left) may be obtained by simply holding a card perpendicular to the tape measure when measuring the left border instead of stretching the tape around the chest; but it can be obtained much more satisfactorily by the simple attachment of the tape measure which is shown in Figure 1.

This tape measure, which can be readily folded up and carried in the pocket, is arranged to measure off abscissa at once.

In order to do this a bit of tubing is soldered to perpendicular to the tape at its zero point and a tightly fitting rod acting as an ordinate slides up and down in the lumen of the tube.

It is however possible to secure still greater accuracy with this little instrument by using the ordinate rod itself as a plessimeter, for it lends itself remarkably well to the orthopercussion of Goldscheider, Ebstein and Curschmann. If the rod is beyond the outer border of dulness and one percusses directly backwards with light percussion the note is a clear one, whereas if one percusses obliquely inwards toward the heart the

note is impaired. Using this plessimeter and percussing directly backwards it is possible to cut off one or two centimeters more from the outline of the heart by percussion and thus to secure with this little instrument measurements which approximate much closer the true diameters of the heart than is obtained with ordinary percussion.

We have learned so much about the cardiac arrhythmias by the study of the venous pulse and the electrocardiogram that we cannot fail to realize that a functional analysis of an arrhythmia is quite as necessary to a diagnosis as is the auscultation of a valvular murmur, and as far as it is possible it should be taught to students along with the routine physical diagnosis. At the Johns-Hopkins Medical School, Dr. Bond and I have been giving to third year students

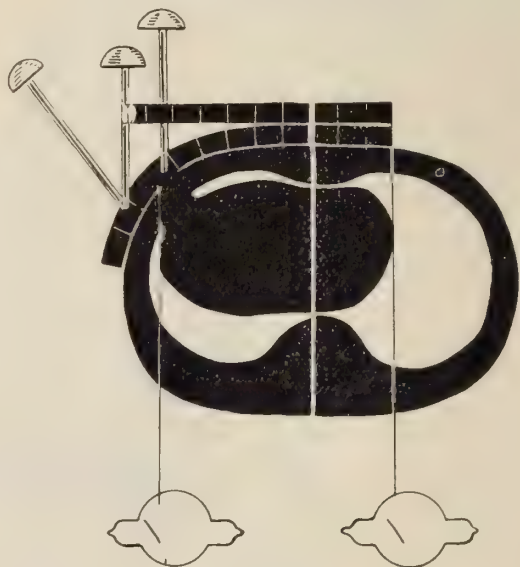


Fig. 3. Diagram showing the measurements of cardiac shadow as obtained with the orthodiagraph (shown by the schematic X-ray tubes), and the percussion outline as obtained by measuring around the chest, as well as that obtained with the orthoplessimeter and ordinate tape; also showing the reason for percussion dulness on percussing obliquely with the ordinate rod.

such a course in the analysis of cardiac arrhythmias by inspection of the jugular pulse combined with auscultation, controlling the diagnoses with phlebograms and electrocardiograms; and we have found them quite as accurate as were the diagnoses of valvular lesions controlled by the microphone and at the autopsy table.

A quite accurate functional analysis of arrhythmias is possible by simple inspection of

the venous pulse as I pointed out in 1907 and as has since been elaborated by Mackenzie and Lewis. For a satisfactory examination of the venous pulse it is necessary first of all to place the patient in such a position that a good visible pulsation is present, the normal venous pulse is not

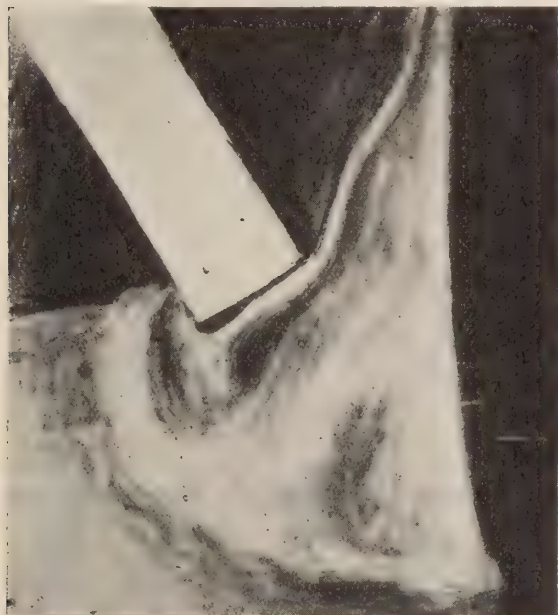


Fig. 4. A—Appearance of card held against the skin over the jugular vein. Vein full—shadow between skin and card, narrow as at the instant of the a and v waves on the venous pulse.

a true expansile pulsation like the carotid pulse, but is determined by a series of collapses and fillings of the vein. The vein collapses when the pressure within it is less than atmospheric, i. e., the pressure upon its walls, namely atmospheric pressure: it fills when the pressure within it is greater than atmospheric, when it is constantly below atmospheric pressure the vein remains empty, when it is constantly above it the vein remains full. The vein alternately collapses and expands and gives a good pulsation when the mean pressure is about zero and in order to maintain the mean pressure at zero it may be necessary in some cases to make the patient sit up, in other cases to cause them to lie flat and even to elevate the feet.

Having obtained a pulsation which is easily seen in the right jugular fossa the next step is the inspection of the pulsation. In order to do this with ease and accuracy we may avail ourselves of some of the well-known principles of physiological psychology. It is well-known that

if we appreciate light objects most readily when they are contrasted with a dark back ground or a shadow, that we appreciate the movement of an object best when it is contrasted with a fixed point, and that we recognize the amount of any change in visual, auditory or tactual sensation but when the amount of the change represents a considerable fraction of the original impression. We recognize a change in weight from 5 to 10 gm. better than a change from 20 to 25 gm. We recognize a change in length of a band from five to ten millimeters better than that of another changing from twenty to twenty-five. It is possible to make use of all these principles of psychology in the study of the venous pulse by merely holding up a bit of card next to the jugular vein as shown in Figures 4, so that both the card and the skin contrast sharply against the dark shadow between them, and it is possible to hold the card in such a way that this band of shadow becomes narrowed to two or three



Fig. 4. B—Same with vein collapsed—shadow between skin and card wide, as at the instant of X and Y depressions.

millimeters as the vein fills and widens to four to six millimeters as it collapses; so that the visual impression of the width of the shadow is alternately doubled and halved. Or the card may be held in such a way that the shadow is just obliterated when the vein is full and appears as a wide slit when the vein collapses;

and then the impression is one of a series of flashes interrupted by shadows like the dots and dashes of a Morse code. In accordance with the laws of psychology these impressions are much easier to time than is the simple movement of one area of skin against another area of white skin as a background, and a greater accuracy of diagnosis is therefore possible by this method.

Viewed in this way the normal or "double"

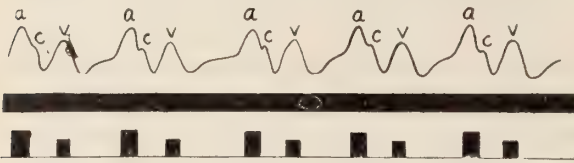


Fig. 5. Normal ("double") venous pulse (semi-schematic), showing below the corresponding waves and collapses visible on the venous pulsation.

venous pulse appears as a double flash accompanying each beat of the heart or pulsation in the carotid artery, interrupted by shadows of perfectly regular duration. The sinus arrhythmias show the same double pulsation with each beat, but the duration of the pauses between the pairs varies, especially with the different phases of respiration. In cases of doubt we can remove this irregularity with atropin. When extrasystoles are present we find a pair or trio of beats at the wrist followed by a long

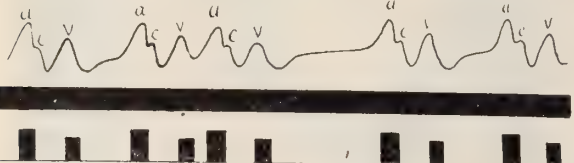


Fig. 6. Venous pulse of auricular extrasystoles showing premature beat with "double" venous pulse.

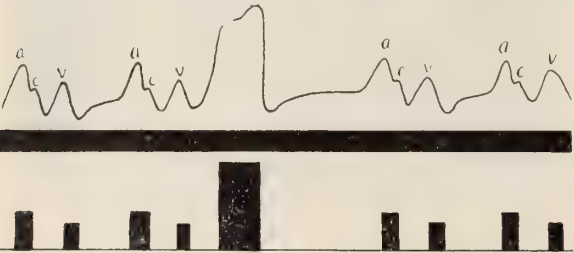


Fig. 7. Venous pulse with ventricular extrasystole showing the large "single" venous pulse accompanying the ventricular extrasystole.

compensatory pause, whereas over the jugular we can distinguish clearly between auricular and ventricular extrasystoles.

The auricular extrasystoles appear as pairs of waves occurring early but otherwise exactly like the pulsation for the normal beats, while the

ventricular extrasystoles are readily distinguished as large long waves which frequently run from the jugular fossa along the course of the external jugular vein across the sternocleido-mastoid muscle, giving the largest and most characteristic pulsation that one encounters. If the extrasystoles diminish or disappear under exercise they are of little prognostic significance; but if they are increased in number by exercise they may be regarded as indications of an overloaded heart and may be considered as an early sign of cardiac weakness. Occasionally, as in one of the patients to be mentioned later, one may encounter a third heart sound that is loud and sharp—the sounds accompanying normal beats, though when they are too weak to open the aortic valves only one sound may be heard with the extra beat instead of two. Occasionally as in one of the cases to be

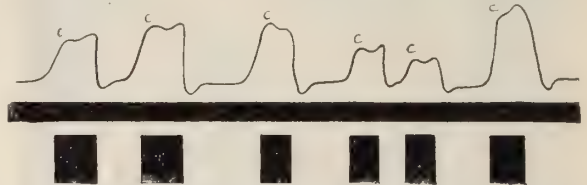


Fig. 8. Venous pulse with absolute arrhythmia showing all the waves "single" or "systolic" in character and absence of any definite pairing or trebling in arrangement.

mentioned again in connection with heart-block, one may encounter a third heart sound so loud and sharp that it might be mistaken for one of these ineffectual extrasystoles which does not open the aortic valves. The latter can be readily excluded, however, by the fact that the third heart sound is not usually heard over the entire precordium, while the sound of an extrasystole is as well heard everywhere over the heart as the sounds of the normal beats. It may, moreover, be differentiated by the fact that the third sound is accompanied by only a single small wave upon the jugular pulse while the auricular extrasystoles are accompanied by a double wave and the ventricular extrasystoles are accompanied by the single large characteristic wave. In the case mentioned the electrocardiogram showed that there was a third heart sound. In auricular fibrillation one often finds full veins and a high venous pressure so that the patient may have to sit up in order to obtain a good venous pulsation, this pulsation is single in character, that is, beat for each beat in the carotid, but there is no regular pairing

or trebling of the beats and the rhythm is absolutely free from definite sequence. The waves are usually smaller than those of ventricular extrasystoles, so that it is often possible to diagnose the latter even in the presence of auricular fibrillation from the interpolation of occasional waves which, though much larger than the rest are not preceded by a long pause. The venous pulsation of auricular fibrillation may be differentiated from that of tricuspid insufficiency by the fact that the latter is often accompanied by a regular pulse, but some cases of extrasystoles accompanied by a tricuspid insufficiency are particularly hard to differentiate from auricular fibrillation. This can be done, however, by pay-

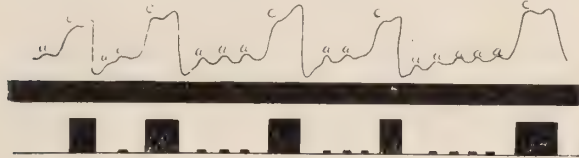


Fig. 9. Venous pulse in auricular flutter as occasionally seen, just visible tremulousness over the jugular veins between the large jugular pulsations.

ing attention to the interspersing of pairs or trios of beats in the midst of regular series, and the feasibility of this diagnosis is best shown by the fact that it was made correctly in a number of cases by our third year students. Auricular flutter with an irregular pulse can sometimes be differentiated from auricular fibrillation by the presence of a very fine tremulousness or series of very rapid small undulations over the vein during diastole.

What has been to us the most interesting condition for physical diagnosis has been the condition of heart-block. You will recall that Stokes, in his famous report in 1846, stated that he was able to distinguish in the pauses between the large beats in the jugular and the loud sounds over the heart small waves and distant sounds which we now know were due to the contractions of the auricle. By this observation Stokes possessed all the data necessary to-day for the complete functional diagnosis of heart-block with the differentiation between partial and complete block. If he had noticed that in spite of the regularity of the large or ventricular beats the number of small waves over the jugular and the number of soft sounds over the heart varied in successive diastoles, he could, without hesitation, have made the diagnosis of complete heart-block. If, however, the number of wavelets and of auricular sounds remained constant

during ten or more successive diastoles, he could have diagnosed partial heart-block.

In listening for the sounds produced by the contracting auricle it is important to rest the bell of the stethoscope as lightly as possible upon the chest wall. They are best heard at the apex or over the tricuspid area. If one bear in mind

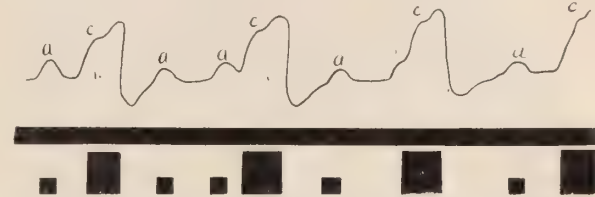


Fig. 10. Venous pulse in complete heart block showing wavelets which vary in number in successive diastoles.

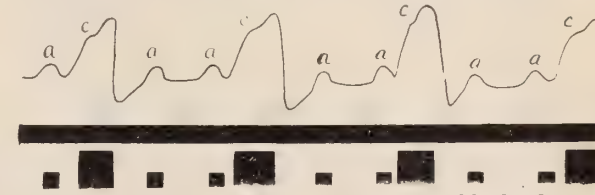


Fig. 11. Venous pulse in partial heart block showing a constant number of wavelets in successive diastoles

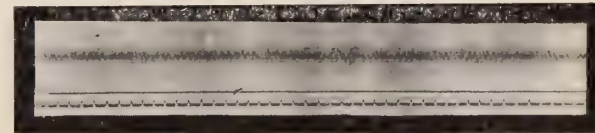


Fig. 12. Tracing of heart sounds made with Lillienstein microphone from a patient with complete heart block, showing the first and second heart sounds (1 and 2), some very slight sounds (a), due to contractions which vary in number in successive diastoles.

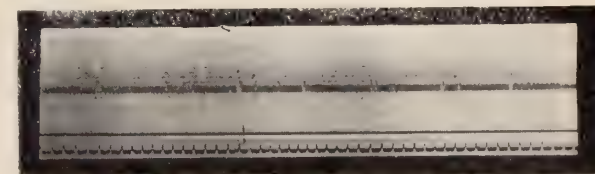


Fig. 13. Similar tracing from another patient with complete heart block and extrasystoles as well, showing the vibrations due to the latter (1 and 2) as great in intensity as those due to the regular ventricular contractions in contrast to the small vibrations (a) produced by contraction of the auricles.

the fact that one or, with very fast beating auricles, two beats of the auricle can be concealed by the extraction of the ventricle it may be possible to state exactly the degree of block, whether two to one, three to one or four to one.

We have encountered a number of cases, however, which show plainly the pitfalls to be avoided in the diagnosis of heart-block. The most common of these is found in many of our

medical students taking the laboratory work in physiology—young athletes of twenty to twenty-five, whose pulse rate upon lying down after dinner while their comrades apply the polygraph falls about forty-five per minute. Coincident with this there is seen an extra wave (the *h* wave of Hirschfelder, *b* wave of A. G. Gibson), upon the venous pulse and a distant ticking sound exactly like the auricular sound in heart-block is heard over the heart. This is merely the normal third heart sound, whose frequent occurrence has been so well described

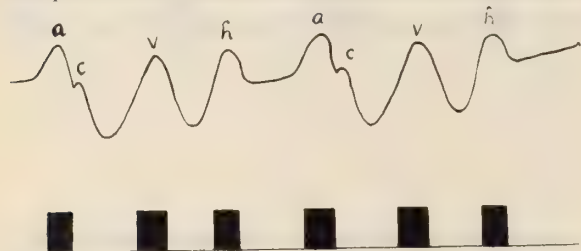


Fig. 14. Diagram showing the time of incidence of the *h* wave on the jugular pulse and third heart sound in persons having a slow pulse.

by Thayer. Heart-block can be excluded by simply causing the subject to make a few swift arm movements, which will accelerate his pulse and cause the third heart sound and the *h* wave to disappear at once, but will leave a partial heart block unaffected or increased in degree. During the current year we encountered one patient with a heart-rate of 44 per minute; in spite of the most careful observation at the time of admission we were unable to make out more than one sound and that a well defined third sound during diastole. The next day, however, after rest in bed, the ventricular rate had fallen a little and in about every seventh diastole two distant ticking sounds could be made out and the diagnosis of complete heart-block became possible. On the other hand, in one case a patient with mitral stenosis, there was never more than one wavelet between beats, and her ventricular rate was often paired. Corresponding to this the venous pulse was sometimes double and sometimes single. The most likely diagnosis in this case seemed to be extrasystoles sometimes auricular and sometimes ventricular, a disturbance which electrocardiographic studies have shown to be of very common occurrence.

In this case, however, the electrocardiograph showed us that we were dealing with a complete heart-block in which the rate of the ventricle was almost the same as that of the auricle, so

that at the time of the single pulsation the auricle was contracting during ventricular systole. This condition could scarcely be made out by simple methods and might have caused some difficulty upon a venous tracing. Had we suspected the heart-block, however, we might have obtained more satisfactory data by accelerating pulse rate with exercise. The sounds of extrasystoles which frequently occur in the course of heart-block should not be confused with those due to the auricular systoles, because as is well known the former are as loud as the sounds of the normal beats and are therefore five or six times as loud as the sounds of the auricular contractions. This is well shown in the tracing (Fig. 13), taken with a Lilienstein cardiophone. The ventricular sounds are shown as 1 and 2; the auricular are lettered *a*. Even when the extrasystole is so feeble that it does not open the aortic valves and therefore causes no pulse wave and gives rise to only a single heart sound, its loudness should differentiate it readily from the auricular sounds, and the presence of the large characteristic wave upon the jugular pulse should certainly do so. These represent a few of the conditions in which fairly accurate observations and trustworthy inferences can be made by the ordinary methods without recourse to elaborate apparatus, though it is desirable to control them with the latter wherever possible.

I would, therefore, like to reiterate the claim that the functional analysis of cardiac arrhythmias is one which can in most cases be made by the general practitioner almost as accurately as can the diagnosis of valvular lesions, and that it should be taught to the student along with the latter in the routine courses of physical diagnosis.

THE SYMPTOMS AND SIGNS OF CARDIAC INSUFFICIENCY IN VALVULAR DISEASE.*

By J. C. FLIPPIN, M. D., University, Virginia.
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We may safely assume that the recognition of the existence of defects in the valves of the heart must always maintain a position of the greatest importance in heart study. When we are called upon, however, to express an opinion

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as to the integrity of the heart, whether this question be raised in connection with its usual physiological responsibilities, or in anticipation of some unusual strain, such as surgical operation, or whether the question has reference to treatment of the organ, we find ourselves concerned with the problem of the ability of the heart to meet the ordinary or the unusual strain, as the case may be, rather than with the existence of this or that evidence of valvular defect. To be sure, experience has shown us the relative risk and danger of certain of the valvular lesions as compared with others, but we are also aware that valvular imperfections may exist for an indefinite period of years without in any perceptible way interfering with the heart in the performance of its functions. On the other hand, a leaking or narrowed orifice may at once place the heart under a condition of embarrassed function whereby it is no longer able to meet fully the circulatory demands. It is to a consideration of the importance and recognition of the latter condition that I ask your attention.

While I shall confine my remarks in the main to the symptoms and signs of insufficiency, I feel we can better interpret these observations if we keep clearly in mind at the same time certain of the facts or conceptions of the physiology of the heart's action. The work of Gaskell and Engelmann has enabled us to recognize five factors at least in the function of the heart muscle; these may be termed contractility, tonicity, excitability, conductivity and rhythmicity. More recently James MacKenzie has emphasized and popularized the practical importance of this conception of the physiology of the heart to the clinical study of its diseased conditions, and in doing so, has, in company with other investigators, made an extraordinarily important contribution to medical knowledge. In our analyses of the varying clinical picture of cardiac insufficiency, I believe we will do well to have ever before us the fact that a disturbance of any one of these functions may to a greater or less degree handicap the organ in the performance of its work. In the more serious forms of cardiac failure, in most cases it would appear, we are confronted with a disturbance of several of these factors at the same time. The introduction of the polygraph and the string galvanometer has given tremendous stimulus to the study of the heart and circulation, particularly with refer-

ence to the disturbances of conductivity and rhythm. The practical bearing of these upon insufficiency in valvular disease is most important, but I make brief mention of them as the more important forms are presented in another paper in this symposium.

In the past the symptoms and signs of insufficiency have in large part been concerned with the well known "back pressure" theory of cardiac failure. This condition has to do more particularly with the contractility and tonicity of the myocardium, though other myogenic functions are not infrequently involved in the process, and in a most important manner. However, a point upon which I would make especial emphasis just now is that a large percentage of valvular cases come to us with these symptoms and signs of gradual loss of tonus and contracting power and exhibiting to a greater or less degree the "back-pressure" phenomenon. In many of these cases, and I may say they represent quite a large percentage of the total, the careful weighing and sifting of the symptoms and signs which experience of the past has given to us, is today the most valuable evidence to be gotten in the course of our examination. What has been termed the "new school" of workers in this field has already given us many points of practical value and the not distant future promises to be rich in results, but many of our past methods are not yet ready for the discard. Now it would be impossible in the time allotted and obviously unnecessary before this company, to attempt anything like a detailed description of the symptoms and signs of cardiac insufficiency observed in valvular disease; the general picture of a congested pulmonary circulation and later the evidence of stasis in the general circulation is familiar to to us all. I will, however, take the liberty of emphasizing the relative importance of certain symptoms and signs and to make mention of some of the more recent investigations bearing on the problem. In the first instance, I would lay stress especially upon the subjective symptoms; nature's signals of distress often give us as early information as is yielded by the ingenious devices of man. Slight shortness of breath on exertion is, I believe, one of the most constant and significant evidences of circulatory failure. Accompanying or following the onset of dyspnoea, the patient often experiences a feeling of weakness,

particularly in the lower limbs; a tendency to sleep with the head slightly elevated, develops a cough and possibly asthmatic attacks appear, which, by the way, we sometimes see treated as cases of bronchial asthma. Faintness, dizziness and mental depression are more frequently observed in Aortic Insufficiency. Pain is an unreliable and inconstant symptom in valvular disease, precordial distress being far more frequently an evidence of digestive disturbance. A temporary consciousness of the beating of the heart is more often in evidence when there is disturbed rhythm. Careful attention to these and other recognized symptoms will often enable us to foretell or forestall the onset of the graver forms of insufficiency. Of the earlier signs of beginning cardiac embarrassment, the value of an accurate delineation of the outlines of the heart should not be underestimated. This, in most cases, can be accomplished by palpation and percussion, but in some cases, notably where the chest is of the emphysematous type or in obese women, an X-ray picture is of distinct service. With the orthodiagraph of Moritz I have had no experience; it is said to be a method of great accuracy. To determine whether or not a heart is enlarged is of prime importance, yet alone it does not answer the question of insufficiency. The hearts of athletes in training are quite constantly enlarged from muscular hypertrophy, an adaptive physiological process whereby the organ is better enabled to withstand increased strain, and in valvular disease it may have the same significance. Again, definite insufficiency may exist without enlargement. Dilatation is far more important, but correspondingly difficult of demonstration in its slighter forms. When appreciable dilatation exists, in addition to an increase in size, the impulse usually becomes more feeble and diffuse, though in some cases, sharp and short. The sounds of the heart are altered, the first sound becoming more feeble, or else has diminished muscular tone and is short, sharp and of a flapping character. A change in the quality of pre-existing murmurs is noticed, a loud bruit frequently becoming less intense and a secondary murmur of tricuspid insufficiency often appearing. Accentuation of the pulmonic second sound is quite constantly observed with the onset of increased pressure in the pulmonary artery, and a splitting of the second sound doubtless has the same significance. We have long

recognized reduplication of the first sound of the heart as a somewhat ominous sign; Thomas Lewis¹ has recently investigated some of these cases and shown that it is due to delayed conduction to one of the ventricles, as a result of which they fail to contract simultaneously. Of the more important *extra-cardiac* signs, I would mention the appearance of rales at the bases of the lungs; oedema, usually beginning in the ankles, and enlargement and tenderness of the liver. A congested liver is often tender before enlargement can be easily demonstrated, and pain under the ribs from this cause is sometimes the leading symptom for which the patient seeks medical advice.

Careful observation of the pulse should never be omitted. As an index to the degree of circulatory disturbance, variation in pulse rate with change of posture or under the influence of measured exercise is important. Here we frequently see what may be termed an accentuation of physiological tachycardia—a gradual increase in the rate of the pulse under the stimulus of exercise, but of abnormal response. In valvular disease paroxysmal tachycardia may also occur. The change of pace in the latter condition is of sudden onset, the rate of the pulse becoming double or triple the accustomed rate, and its onset having no constant relationship to exercise. I have recently seen this interesting condition in a woman with stenosis of the mitral valve.

The relationship of blood pressure to the actual or potential existence of insufficiency has received much attention. In general, it may be fairly said that the earlier expectations from the sphygmomanometer have not been realized. With the introduction of the auscultatory method, which enables us to accurately and easily record diastolic as well as systolic pressure, possibly a more extensive study of the pulse from this point of view may be more fruitful of results. Quite recently W. J. Stone² has published the results of some investigations in this line. Taking the pulse pressure, that is, the difference between the systolic and diastolic reading, as representing the "load" of the heart, comparison is made between this figure and the diastolic pressure. In normal individuals Stone finds that the pulse pressure is about 50 per cent. as compared with diastolic readings. When this comparative ratio is increased it represents a degree of heart "over-load," since a corre-

spondingly increased amount of energy must be expended by the heart to maintain circulatory equilibrium. This of course is no index of insufficiency, but where a heart is working under the disadvantage of valvular defect it may be a warning of danger from this source. The observations of this author further show that a rapid fall in this index of over-load occurs in dilatation.

Venous pressure is doubtless of no less importance in the activity of the heart than arterial, but clinical observations on the latter are attended with greater difficulty. The filling of the ventricles during diastole is largely if not wholly dependent upon venous pressure and the initiation of the impulse of contraction in the auricle is also associated with intra-auricular pressure. If Henderson's late work be accepted, the margin of variation of venous pressure compatible with a normal output of the heart is very small. Circulatory conditions in the venous system, therefore, bear an important relationship to insufficiency. Stengel³ has emphasized what he terms the "Extra-Cardiac Causes of Failure of Compensation in Valvular Diseases," pointing out the importance of the recognition of venous stasis due to causes other than back pressure, which in some instances may be due to diminished muscular exercise, or particularly to engorgement of the veins in the splanchnic area.

Ideally, our efforts should be directed to forestalling the onset of decompensation in valvular cases: this naturally necessitates the ability to measure the reserve force of the heart—in each case to compute the factor of safety. Much study has been given to this phase of heart work, but as its consideration is outside the scope of this paper, I will say that Hirschfelder⁴ has, in an article in the "International Clinics," given us the best resume of the subject to be found in medical literature.

In the foregoing, the effort has been made to bring to mind certain of the more important evidences of cardiac insufficiency and to correlate them with the underlying facts of physiology and pathology. It must be remembered, however, that these signs represent, for the most part, only an aspect of this interesting and complex process, for we see many cases of death from valvular disease where the clinical picture is an altogether different one. Failure of the heart and death from the stoppage of this

vital organ is yet in many cases a baffling question for pathologist and physician alike. Not many months ago, Sir Clifford Allbutt⁵, the distinguished Cambridge clinician, delivered an address "On the Physician and the Pathologist on Heart Failure," in which he drew rather a dark and gloomy picture as regards our knowledge of heart failure in general, seemingly unwilling to admit the value and scope of the newer school of investigators. For this he was rather sharply criticized, and apparently justly so, as modern methods of research, especially the graphic study of the living heart, has already cleared up many problems upon which pathological study of the past has shed little light. Much of this work is yet in an undeveloped stage; the technical methods employed are not easily mastered and are time consuming procedures. But we should not be dismayed because of the apparently increasing complexity of the subject, for, in time, doubtless a majority of the newer discoveries with reference to the heart will be capable of translation into relatively simple and practical terms. Meanwhile, let us not relax our efforts in the application of methods of time-proven worth.

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THE CLINICAL SIGNIFICANCE OF PULSUS ALTERNANS, FIBRILLATION OF THE AURICLE, AND PREMATURE CONTRACTIONS (EXTRA SYSTOLES).*

By PHILIP S. ROY, M. D., Washington, D. C.

I do not think the subject I have chosen of more importance than many other diseases of the heart muscle, but they are striking examples of what the new methods of diagnosis have done in making clear conditions that but a few years ago were vaguely discussed by clinicians. I have chosen three diseases of the heart muscle which can be diagnosed by sphygmographic tracing (radial tracing). The sphygmograph ranks with the sphygmomanometer in clinical importance. Of course it does not afford the wider information of the polygraph or electrocardio-

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gram. The Dudgeon sphygmograph, with a time-marker, is one of the best.

PULSUS ALTERNANS—A REGULAR PULSE OF ALTERNATING STRENGTH.

This condition is due to exhaustion of contractility of the heart muscle. It was first described by Traube in 1872. Traube discover-

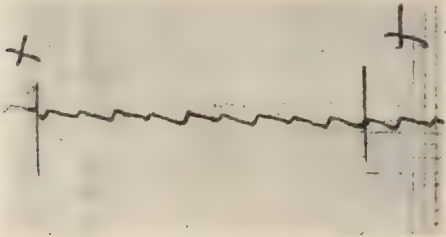


Figure 1. Pulsus alternans. Personal observation. Regular rhythm. Alternating large and small beats.

ed the condition by the aid of a Marey sphygmograph, and it is unfortunate that it can be rarely diagnosed without the aid of an instrument. It was not until 1901 that Hoffman showed by ex-

pulsus bigeminus, which is caused by premature contraction of the auricle or ventricle, or other condition not necessary to mention. In pulsus bigeminus a long pause follows a small beat. In pulsus alternans, if there is any difference in time, the pause is shorter after the small beat, but the great point of difference is that pulsus alternans is a pacemaker rhythm, while the bigeminus beat originates in one of the parts of the primitive tract outside of the pacemaker—in other words, a premature beat. Frequently the first sign of alternation in the pulse is a small, *regular* beat following the first large beat after a premature contraction. Alternation in the pulse can be brought on by exercise and is often overlooked in hospitals, where the patient is at rest. In Windal's case, reported in *Heart* of November, 1910, alternations and premature contractions were so interposed that the radial tracings could have been easily mistaken for auricular fibrillation.

Major operations should never be performed upon those suffering with pulsus alternans un-

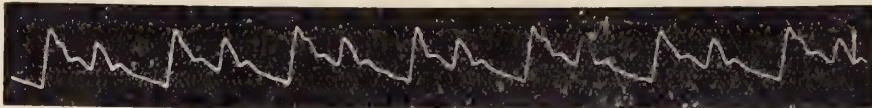


Fig. 2. Pulsus bigeminus. (Mackenzie.) Irregular rhythm due to premature contractions of the ventricle. Note long pause after small beat.

perimental work that pulsus alternans was impaired contractility. We know that contractility of the heart muscle is one of the special functions demonstrated by Gaskell.

The gravity of pulsus alternans makes its early diagnosis a matter of great importance. It is often associated with angina, dyspnea, Stokes' breathing, high blood pressure, arterial sclerosis and renal disease, yet all these may be absent. Lewis gives its prognosis the gravity of subsultus tendinum, optic neuritis and risor sardonicus. He adds: "It is the faint cry of a failing muscle; a few months; a few years, and the end comes." Lewis considers the prognosis more favorable in acute toxemias, when the intoxication has been relieved, but we know that when it occurs in fevers, typhoid and others, the prognosis is grave. Mackenzie takes a more favorable view, believing life can be prolonged for years under proper care. My personal experience has not extended over a sufficient length of time to warrant an opinion.

Pulsus alternans has been often confused with

less life is in immediate danger; then local anesthesia should be used and all noci-associations blocked by the Crile method. Hirschfelder well expresses the condition when he says, "Pulsus alternans always indicates disproportion between the rate and contractility of the heart." Hirschfelder, Hering, and others have produced alternations of the pulse by throwing induction shocks at a rapid rate into the heart muscle; but after a few moments of rest the heart regains its power of contractility and the alternating character of the pulse disappears. The surgeon always asks the anesthetist the condition of the heart, generally meaning valvular defects or irregularity in rhythm. A heart may be running smoothly with no valvular lesion, and yet this dangerous condition of alternation exist. If the patient is able to go about, moderate exercise will bring on alternation and the blood pressure taken at this time will fail to show a rise of 30 or 40 mm. Hg., which occurs if the heart muscle is in good condition. (Authorities disagree as to the accuracy of this test.)

The importance of the instrumental method of diagnosing diseases of the heart, is acknowledged by practically all. That great physician, Richard Cabot, who only a few years ago called the sphygmograph a toy, has in his recent work on physical diagnosis, given generous mention and full value to the instrumental method of diagnosis in diseases of the heart.

The inaccuracy of reading the pulse by the aid of the finger is shown in an illustration given by Hirschfelder: "After two eminent physicians had examined a patient, one wrote 'pulse not collapsing;' the other, 'pulse collapsing in quality.'"

The treatment in pulsus alternans is rest, mental and physical. Brunton believes glucose is of special aid in nourishing the heart. Digitalis is contraindicated in this condition; while with high blood pressure, dyspnea and no heart dilation, Mackenzie has found chloral of great benefit. One of the most dangerous diseases denoting exhaustion of contractility is angina pectoris. While one tracing taken in angina pectoris may not show alternation, another tracing may. Angina pectoris is exhaustion of the left ventricle, and any pathological condition that will relieve the exhausted muscle will prevent the angina attacks. Broadbent, Musser, Mackenzie, and others have called attention to the disappearance of anginal attacks after the appearance of mitral regurgitation, which relieves the left ventricle. I have recently observed this phenomenon. The chest pain of angina and the rigidity of the chest muscles are protective phenomena similar to the abdominal symptoms in appendicitis.

AURICULAR FIBRILLATION — VENTRICULAR TYPE OF VENOUS PULSE.

It is unfortunate that so many different names have been given to this arrhythmia. It has been described by Mackenzie under Nodal rhythm. Other names are disorderly rhythm, pulsus irregularis perpetuas, perpetual arrhythmia, auricular flutter, and undoubtedly the delirium cordis of the earlier writers was, in most cases, auricular fibrillation. The term, delirium cordis, was sometimes used to describe paroxysmal tachycardia and premature contractions. Cushny, Edmonds and Hewlett were the first to demonstrate by experiments upon animals, and with the electrocardiogram, that *perpetual irregularity of the heart* is due to auricular fibrilla-

tion, which they define as a condition of the auricle in which haphazard impulses from the auricle to the ventricle, replace the pacemaker, or normal rhythm. Mackenzie called this condition nodal rhythm because he believed the impulses to the ventricle originated at the node of Tawara (the auricular ventricular node), and that the auricle and ventricle contracted at the same time. We know now that this is incorrect, for during auricular fibrillation the auricle is usually diastolic, with almost complete paralysis. Mackenzie based his conclusions upon the pres-

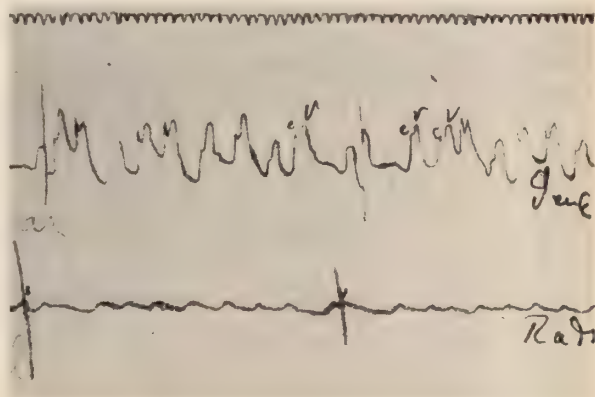


Fig. 3. Auricular fibrillation. Personal observation. Irregular spacing of radial beats. With only V wave in the jugular.

ence of the ventricular type of venous pulse (absence of the A wave)—but this pulse is due to the auricular contractions being too feeble to produce the auricular (A wave) upon the venous pulse.

Hirschfelder and others have pointed out that the irregularity may suddenly disappear and normal rhythm be established. Paroxysmal tachycardia may pass into fibrillation and there can be no doubt that a relationship exists between the two. It is always attended with chronic disease of the heart muscle, particularly in the primitive tract. The clinical importance of auricular fibrillation is shown in the great attention which is being given it by the best observers in maladies of the heart. In the last three years, nine out of the twelve numbers of "*Heart*" have contained illuminating articles upon this subject. It is not found before 10 years of age and rarely before 17. It is the most common arrhythmia following rheumatism. It is more common in men than in women, except in the rheumatic cases, where it is about equally divided. A

rheumatic history is given in 70 per cent of the cases, and over 40 per cent have mitral stenosis. In a general hospital 60 per cent of the organic heart cases have auricular fibrillation. A pulse of 120, irregular in character, usually indicates this condition. Under exercise the heart will reach 200 beats to the minute and become more irregular. In premature contractions and partial heart block, the pulse steadies under exercise. Mitral stenosis occurs in over 40 per cent of the cases of auricular fibrillation. Indeed it is one of the chief mechanical causes of this condition. The stretching of the left auricle, because of the narrow channel between the auricle and the ventricle, produces stasis and partial paralysis of the

cral health begins to fail we have a tubercular picture. The cough in mitral stenosis is sometimes brassy, due to the dilated left auricle pressing upon the recurrent laryngeal nerve. The mitral thrill imparted to the hand by palpation at the apex, "purring" in character, is peculiarly characteristic of mitral disease. Mitral stenosis often has a rheumatic history; aortic regurgitation, a syphilitic history.

There is a blood pressure difference between aortic regurgitation and mitral stenosis that will greatly aid us in diagnosis.* In mitral stenosis the blood pressure is often below normal, and never high unless accompanied by some arterial or kidney changes. Rowlands, Hill and others have shown that in aortic regurgitation with

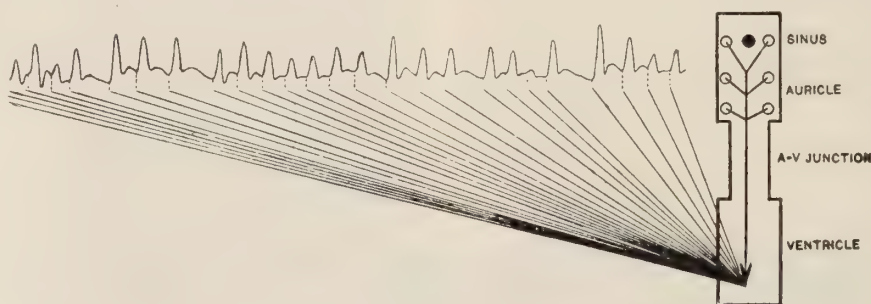


Fig. 4. Fibrillation of auricle—Lewis. Radial tracing.

auricle, which condition is an exciting cause of fibrillation. We can readily see, then, the importance of recognizing the presence of mitral stenosis in auricular fibrillation because it constitutes a strong diagnostic point. The condition for which mitral stenosis is most apt to be mistaken is aortic regurgitation. In mitral stenosis, the auricular systolic murmur at the apex, usually called the pre-systolic, is absent when the auricle is fibrillating, as is also the snapping first sound; on the other hand, the second sound of the heart can be heard, though often lost in aortic regurgitation. Another symptom that aids in making a differential diagnosis is the mitral face or flush of perfect health, that so often occurs in mitral disease, in strong contrast to the pale face of aortic regurgitation. In aortic regurgitation the heart is greatly enlarged and the superficial arteries can be seen to beat all over the body. This is such an important diagnostic point that Oppolzer made the diagnosis of aortic regurgitation by resting his hand on the dorsum of the patient's foot. Mitral stenosis is often attended with hemoptysis, shortness of breath is an early symptom, and when the gen-

compensation, the difference between the blood pressure in the radial and posterior tibial, in the horizontal position, is 50 to 75 mm. Hg. higher in the leg than in the arm. In recent cases reported by Rolleston the blood pressure was 140 mm. Hg. in the arm and 350 in the leg. In one case the arm was 125 and the leg 320 mm. Hg. I know of no heart condition causing such great difference in blood pressure in the upper and lower extremities, as does aortic regurgitation, which therefore makes the blood pressure a strong diagnostic point. I have observed this blood pressure difference in two cases of aortic regurgitation.

I will not go into the question of the difference in the valvular sounds, between aortic regurgitation and mitral stenosis, while the difference in location of valvular sounds usually makes it easy for us to determine with which condition we are dealing, there are times during fibrillation when the heart murmurs are very confusing.

In auricular fibrillation with the pulse rate

*The difference between systolic and diastolic blood pressure (auscultatory method) of 60 mm. Hg. in aortic regurgitation is one of the most valuable diagnostic signs.

constantly over 120 the prognosis is always unfavorable, but the therapeutic test is one of our greatest aids to prognosis. It is in auricular fibrillation that digitalis makes its most brilliant therapeutic record. It has been only in the last year that we have learned through the investigations of Cushny, Marris and Silberberg that in auricular fibrillation the action of digitalis is on the muscle and not upon the vagus, as has been generally taught.

Indeed, when one mentions auricular fibrillation he immediately thinks of digitalis. The treatment of the disease is digitalis and rest. My rule is to give from 10 to 20 drops of a standardized tincture of digitalis four times a day until results are produced; if extra systoles make their appearance we know that digitalis has been pushed to its full physiological action and must be stopped or reduced. There are times when other members of the digitalis group may do good service, particularly squills and strophanthus. The latter I usually give intravenously. It is probably interesting to note here that Hatcher, in the last few months, has proven conclusively that the nausea of digitalis is of central origin and not due to local irritation. It has been very common for us, when digitalis has produced nausea by the stomach, to give it hypodermically. Belladonna should be avoided in auricular fibrillation. While general anesthesia is not so positively contraindicated as in pulsus alternans, yet it should be given with the same care as has been mentioned in that condition, and local anesthesia is to be preferred.

In the June number of "*Heart*," 1913, A. Goodman Levy completes the observations upon chloroform anesthesia, begun by Lewis and himself, two years ago. He sums up as follows—*Ventricular* fibrillation is a cause of death under chloroform, probably the only cause of any moment. It can be prevented by steadily maintaining a full degree of anesthesia. Fibrillation occurs either during the first moments of chloroform inhalation, or when the patient is regaining consciousness. These observations conclusively prove the danger in chloroform anesthesia.

PREMATURE CONTRACTIONS—EXTRA SYSTOLES.

Premature contractions are ectopic impulses of either the auricle or ventricle. They are far more common in men than in women, which, as I have mentioned, is the rule in fibrillation of the auricle. Cases have been recorded from

four to 90 years, but they are more common between the ages of 50 and 70 years. I will say something later about their danger, but will mention here that Muller believes that in all cases of premature contractions there is disease of the heart muscle, and other authorities agree with him. Lewis calls attention to the fact that they are more common in those suffering from organic heart disease. In a group of 75 cases collected by Lewis, 57 per cent presented recognizable organic disease of the heart. I therefore feel that favorable prognosis can not be given unless a careful examination has been made of the whole cardio-vascular system.

Two of the points to be considered in prognosis are high blood pressure and shortness of

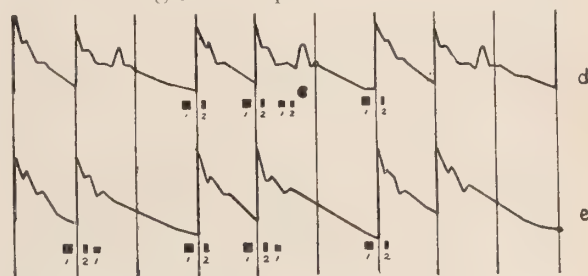


Fig. 5. D—Extrasystoles raise the aortic valves. Heart sounds are in groups of four.

E—The smaller extrasystoles do not raise the aortic valves. Heart sounds are in groups of three.

breath upon exercise. These symptoms should always cause a guarded prognosis in cases of premature contractions. We know that drugs of the digitalis group can cause extra systoles, as can also tobacco and alcohol. Much has been said about their production from nitrogenous intestinal putrefaction, but upon this subject we have but few facts. Flatulency can cause them. Lewis produced them by ligation of one of the descending branches of the coronary artery. Barker and Hirschfelder injected the heart muscle with alcohol, iodine, silver nitrate, and other drugs without producing extra systoles. These contractions usually occur in hearts beating below 100. They disappear under exercise or any of the conditions that increase the heart beat, and return upon resting. Pressure upon the abdomen will at times control them. They are often absent when lying down, reappearing when the person assumes an erect position. Their presence should never be excluded in a physical examination until the person has been made to assume the erect posture. Extra systoles often disappear under the use of nitroglycerin and atropia, as would be ex-

pected from the action of these drugs upon the heart. While the existence of extra systoles in themselves does not require a person to give up active physical and mental work, yet we should be most careful to eliminate all serious heart lesions which may be associated with them, especially mitral disease, pulsus alternans and auricular fibrillation, before giving our patient great freedom of action.

Extra systoles, without organic disease, more often than any other cardiac condition, produce what the patient calls palpitation. Extra systoles will be often accompanied with faintness, giddiness on walking, coldness of the extremities, and sweating, which will greatly alarm the patient, and, not uncommonly, the physician. The recognition of extra systoles by the sphygmograph is usually easy. The small beat is followed by a long pause, but there are times when the beat is not strong enough to lift the aortic valves, then the radial tracing will not show the extra systole, and the long pause in the radial tracing will suggest heartblock. Under these conditions, the sounds of the heart will aid us to differentiate extra systoles and heartblock. In heartblock there is perfect silence in the heart, between the radial beats, due to the ventricle being absolutely at rest, while in the extra systole we hear the first sound of the heart, even though the beat is not sufficiently strong to be felt at the wrist. The diagram which I present shows the grouping of heart beats in extra systoles. When the aortic valves are raised, we hear the heart sounds in groups of four, and diastolic or systolic murmurs, if the aortic valves are diseased; when the aortic valves are not raised, the groups will be in threes, with a faint first sound and no second sound from the closing of the aortic valves. In premature contractions, when a careful examination shows no serious condition, it is important to reassure the patient. Heavy meals should never be eaten at night. The bromides undoubtedly aid in the treatment of these cases, and while digitalis in full doses often causes extra systoles, yet in moderate doses it is our most reliable remedy. Constipation or intestinal indigestion should be corrected. 1200 Massachusetts Ave., N. W.

A bill is pending before the New Jersey Legislature to have all bichloride of mercury tablets in the shape of coffins.

TREATMENT OF THE FAILING HEART.*

By ALEXANDER G. BROWN, JR., A. B. M. D., Richmond, Va.
Associate Professor of Medicine, Medical College of Virginia; Physician to Memorial Hospital, etc.

The subject of treating the failing heart has been extensively and fully dealt with during the last few years, and several practical papers have been read upon this subject before this Society. The subject is so important, and the condition so frequently met with, that a further discussion of it, it is hoped, will tend to promote interest in the early and adequate treatment of disabled hearts. The early recognition of myocardial weakness and cardiac decompensation, so common in our times, offers pronounced rewards to the physician from therapeutic standpoints. Often the crippled heart that puts the patient in total or partial invalidism may be placed upon a good working basis and restore the subject to an effective station in life.

Judgment is indeed a necessary therapeutic agent in treating the failing heart. For, while modern study of heart action, normal and abnormal, has brought forth a varied and remarkably accurate set of instruments for the more scientific examination of the diseased heart, yet it must be said, after giving them a full acknowledgment of usefulness in their various fields, the management and treatment of the failing heart must finally rest upon clinical judgment of the physician. That judgment is formed, if properly exercised, from a keen, thorough-going, comprehensive, and intimate acquaintance with the kinds, the initial manifestations, probable causes, environmental influences, and the methods and agents to be used in the treatment, of heart failure. The importance of cultivating judgment on this subject is emphasized by the great frequency of "heart failure." In the practice of every physician, one is very frequently brought face to face with the problem of exercising the judgment of administration of drugs, which, if improperly given, may mean death; if properly given, may bring one moribund back to life, within certain limits, for many years, if not to run the full length of days. The practitioner, therefore, should arrange for himself an orderly grouping of these cases, and should have a well-defined conception of the condition known as failing heart; he should likewise have an understanding of the abnormal per-

*Read before the forty fourth annual meeting of the Medical Society of Virginia, at Lynchburg, October 21-24, 1913, as a part of Symposium on the Heart.

formances of the elements that make up the action of an incompetent heart, being keen to discern the first signs of muscle failure.

What is a failing heart? What signs or symptoms speak out of a failing heart? Surely if the heart is failing and there is evidence of it, one should apply corrective measures, if such are obtainable, at the earliest moment. A failing heart is a losing heart—losing the reserve force, the power of response that sometimes in health or disease will be needed. Should the physician wait for the late and terminal phenomena of decompensation or insufficiency, with its obtrusive, frank, gross signs of heart dilatation, or pulmonary oedema, of visceral hyperemia and delirium cordis—wait for these last desperate signs of heart struggle, before recognizing or attempting to assist the heart to perform as nearly normally as possible its function? Do we wait in tuberculosis, in appendicitis, in diphtheria, in syphilis, for the late symptoms before giving aid, before administering therapeutic help to the diseased or disabled parts? If not, why should we wait for decompensation, for broken compensation, to set in, before we assume therapeutic management of the evidently crippled or failing heart, although the subject is not seriously inconvenienced or abnormally distressed? We should not wait. The after life of the cardiopath is the better, longer, more comfortable, the earlier the disabled heart is recognized and put under treatment. It is agreed now that heart action is dependent upon its myogenic structure primarily, while the nervous and clinical influences enter secondarily into the complete performance.

The heart muscle inherently possesses certain peculiar qualities—automatic stimulus production, conductivity, irritability, contractility, tonicity. These qualities find their cable of communication in the bundle of His, which arises in venous ostia of the right side. Here originate the automatic muscle stimuli that consummate in the systolic act of the heart, timing their rate, uniformity, completion in regular manner, strength, and regularity. Disorders or disturbances of this region may result in stimuli, conflicting and irregular, arising from other parts of the auricle, or from the ventricle, or elsewhere, thus producing extra systoles, etc. Influences from the nervous mechanism and various elements in the blood tend, when perverted, to disturb the normal action of the heart muscle,

and bring about irregular and insufficient systolic action. Now, no matter with what various diseases the heart may be afflicted, whether valvular, vascular, degenerative, obstructive or what not, the failing heart must finally display its disablement through the disturbance of these inherent physiologic functions possessed by its muscle, controlled by the nervous supply, and sustained by the quality of its blood.

GENERAL MEASURES IN TREATMENT.

Mental Therapy.—If an emergency exists, if there is an acute dilatation or acute heart failure, the physician's mental influence should be at once one of reassurance, of command, and of comfort. This may be thrown out in the voice, the expression, the very presence of the physician. The strong will of the physician quiets the alarmed mind, allays the excited mental state, and frees the disabled heart of the reflex sensations of fright.

If the condition is one in which time is a factor, in which chronicity is the probable course, the patient with the failing heart should receive general optimistic suggestions from the physician. Nothing serves to thwart the successful management of the failing heart to a greater extent than mental depression, melancholia, pessimistic outlook on the part of the patient. On the other hand, a great aid to the active support of the failing heart can be gotten by imbuing the patient with the hope of recovery, with a spirit of fight for returning health, and with a purpose to resume, if only in modified manner, the former life.

Rest.—In all types of failing heart, and at any stage of its failure, rest in more or less complete manner is imperative. The adaption of this therapeutic measure to meet the needs and requirements of the various types and stages of heart disability is a matter involving no small amount of experience and judgment. Rest in bed is a great aid in restoring strength to the debilitated heart. In the worst cases, where nervous temperament, adverse environment, and the reserve force of the heart muscle seem exhausted, absolute rest in bed and isolation of the patient should be secured—guarding well against depression and despondency by relaxation of the rules of rest. Some cases may be placed in absolute rest to advantage for a certain time, and after that period continued rest may cause an aggravation of the symptoms.

Other cases yield best to a modified rest treat-

ment, resting in the recumbent position for short periods, each day at specified times, and always assuming a recumbent position when there are any symptoms of heart distress. After all is said, the application of rest is an individual requirement. No definite rule can be written out to cover all cases. Rest is an excellent therapeutic measure to be used with judgment. Rest in bed in the case of aged patients, for instance, past fifty years, should be practiced with extreme care, for, if carried too far, and for too long a time, it is harmful; on the other hand, rest in bed after an acute infection in young patients who show myocardial debility, is generally most wholesome and productive of great good.

Sleep should be invited by every natural means. Sleep rests in a peculiar way the tired heart, and frees the mind of harrassing stimuli arising from a sense of invalidism and disability.

PHYSICAL MEASURES.

Exercise.—Gentle but daily massage, cautiously given in the aged patients, is of manifest value to subjects in whom the venous return is sluggish, and the lymphatic circulation impaired. If the enforced rest in bed is required for some weeks, massage, properly given, serves as a most useful adjuvant, and tends to improve the general muscular tone, relieving the patient of muscle pains, overcoming restlessness, and inducing quiet.

Exercises begun in bed, when judiciously given, give the physician a criterion of judgment as to the functional power of the heart, and also tend to restore power to the muscles of the heart.

Passive movements afford the mildest exercise for the patients, and should be given by the physician himself, at least at first. With the patient at rest, making no effort whatever, the hands and feet may be systematically and rhythmically moved by the physician, giving every care to avoid sudden increase of blood pressure. From this the exercise may take the form of antagonistic contraction, in which the patient is instructed to exert slow but persistent resistance by antagonistic muscles to certain muscular exercises. When this form of exercise is practiced, the patient should be instructed to breath freely and not to continue if overtaken by difficulty of breathing, or a sense of fatigue.

Schott's movements, in which the exercises of the patients are resisted by a skilful attendant, are advantageous. Daily application of resis-

tance on the part of the patient enables him to receive a gradual increase of work, and thereby daily add to his ability for heart work.

These movements should be performed slowly, uniformly, with a rest period between each set of movements, and with a due care to avoid breathlessness, pallor, and lividity of skin.

Walking and climbing may be carefully practiced in the after-treatment of heart weakness. The lengths of the walks and the height of the climbing must be carefully determined, and have place in the treatment only in the final stage.

DIET.

A distended stomach embarrasses seriously the weakened heart. It pushes up the diaphragm, displaces and crowds the heart, and increases its action. No large amount of food, either solid or fluid, should be introduced into the stomach at one time. The diet should be adequate in caloric value. Frequent small feedings during the waking hours are better than three large meals. A diet consisting of milk, cereals, small amount of vegetables, a little meat, eggs, fruit, custards, cocoa, or ice cream and such light food, give the patient a well-balanced diet without overcrowding the stomach and intestines with flatulence and pabulum. The interdiction of effervescing waters, salt-free food, and the use of a dry diet, are measures in the diet of failing heart that have individual application. As a rule, effervescing waters oppress the heart; salt-free diet, especially in cardio-renal cases, favors absorption of exudates or dropsical effusion, and the dry diet where blood pressure already betokens over-filled vessels, assists in lowering the amount of resistance upon systolic action of the heart.

Alcohol as a drink should not be permitted in these cases. This is a general rule which has exceptions. The greatest care and judgment must be exercised in the use of alcohol in any form, although some patients seem to require it owing to previous habits. Of course, its sudden withdrawal is also dangerous in cases habituated to its influence.

The same may be said of tea and coffee. Their use or non-use depends largely upon the individual patient. Certainly in threatening heart failure it is inadvisable to permit their use, for they tend to excite and stimulate mental alarm, producing tremor, nervousness and sleeplessness. At the same time patients are seen who

seem to do better if permitted to indulge in a cup of coffee in the morning. Tobacco is deleterious to the weak heart and should not be used. It adds to the work, and often produces irregularity of the heart, pain and palpitation.

ELIMINATION.

Imperfect elimination of the body waste is consonant with imperfect circulatory balance or cardiac decomposition. The kidneys, intestines, skin, and lungs, fail as the heart fails. The emunctories need watching and regulating.

The kidneys and the heart cannot be separated in treatment, as the heart strengthens, the kidneys better perform their functions. The use of diuretics is often harmful, while rest, regulation of the diet, and purgation afford the best means for securing a return of diuresis. The question of purgation is an important one. Its use must not be too drastic or persistent. Free and copious elimination of pabulum from the intestines frees the body from interogenous poisons of fermentation and putrefaction, liberates from the intestines gas which embarrasses the heart's action, removes fluid from the over-filled vessels, and drains the hyperemic organs; in this way the cardiac burden is lightened.

In severe cases purgation should be very moderate. Such drugs as calomel, bluemass, compound jalap powder, elaterium, aloin, colocynth, followed by small doses of an aperient water, may be given to suit the needs of the case. The caution of over-purgation should be observed, as it very frequently happens that the act of defecation super-induces sudden death in the weakened cardio-path.

The skin by daily baths and rubbings should be kept in good condition, for, while it is not definitely known how much, if any, the skin assists the defective kidneys, it is clinically believed to assist in elimination of deleterious waste products from the body.

Likewise, the lungs should enjoy the freest and most complete contact with the purest and coolest fresh air, guarding the skin at the same time from exposure to cold or inclement atmospheric conditions. Cool fresh air in the lungs affords tonic to the circulation, and assists in rejuvenating the debilitated heart. However, patients with weak and failing heart muscles should avoid sudden changes of atmospheric pressure.

MEDICINES.

Digitalis.—Cushny states that digitalis "affects the heart in several different directions;" it slows the heart by stimulating the inhibitory center in the medulla; it increases the strength of cardiac contraction; it adds to the tone and excitability; it diminishes the conductivity along the bundle of His; it produces constriction of the peripheral circulation and the circulation of the intestines, the renal vessels not participating in this constriction; it is diuretic; and it constricts the coronary arteries.

In the failing heart, characterized by falling blood pressure, digitalis stands out as the one drug which meets the requirements better than any other. It ranks first because it slows the pulse rate, it restores pulse pressure, it doubles the heart-power, and it increases the velocity of blood flow. The weakened heart empties better, it fills better, and it restores the circulatory balance better under the influence of this notable drug.

While digitalis is acknowledged to be, and is generally used as the most satisfactory drug in heart disease, it is a drug that can be, and I fear is, unadvisedly used or persisted in when it is doing positive harm. The effect upon the circulation and heart must be carefully watched. If the use of digitalis aggravates the irregularity, it should be stopped. Its use in cases of badly degenerated heart muscle produces too much strain and load upon the heart, and embarrasses the weakened heart. The borderline cases, where it should be used and where it should not be used, cannot be named arbitrarily. Experience quickly points out its useful and its harmful effects. Clinical observation shows that the preparation of digitalis used matters very little if the preparation is physiologically standardized. The frequency and amount of the dose of the various preparations is determined by the effect produced, which should be a slowing of the heart, an increasing of its output, and a restoration of its regularity of action.

Standardized tinctures of fluid extracts give satisfactory results. These may be given in series, continuing the use of 15 minims of tincture, or 5 minims of the fluid extract every four hours until the pulse is reduced to 80 per minute. The most satisfactory form of digitalis in my experience is digipuratum. I have seen

this preparation tone and steady hearts that failed to respond to other forms of digitalis or other heart tonics. In my hands it has been used in emergency very frequently. When given hypodermatically in acute dilatation, it acts with surprising promptness and sustained effect. If the patient is given the preparation too rapidly, toxic effects soon set in, characterized by irregular heart action, nausea and diarrhea. Often a cardiopath may be given large doses, and after the heart is gotten well in hand a daily dose of a tablet (containing grains $1\frac{1}{2}$), given on alternate days in the morning for a long period of time, keeps the heart in good working condition.

Digitalol is a reliable preparation, being a fat free tincture of digitalis, physiologically standardized; the dose is 5 to 15 minims. Digalen, a new preparation, is soluble digitoxen (Cleotta's); 15 minims (1 c.c.) represent 1-200 grain of digitalin. This is a favorite preparation with many clinicians; it can be given by the mouth, hypodermatically, or intravenously. It has been used by me with satisfaction in acute heart failure. Digitalin, "German", is a mixture of digitalin, amorphous digitonin and digitalin, and is given in doses of from 1-10 to 1-2 grains, three or four times daily, in pills, tablets or subcutaneously. It is "non-cumulative," and by some clinicians is greatly liked. It is bad therapy to attempt to use digitalis in hearts showing fatty degeneration, in general arteriosclerosis, and particularly with sclerosis of the coronary arteries. Often where large or ordinary doses give trouble, small doses associated with strychnine and the nitrites, give very favorable results. The signals for discontinuance of digitalis in every case are nausea, vomiting, diminished amount of urine, oppression, fullness in the head, numbness and coldness of the extremities, and slow, intermittent, irregular pulse. I have patients who have taken the digitalis in some form for many months without harmful effects.

Strophanthus.—As a heart tonic, strophanthus is not the drug with the broad application and fulfilment of digitalis. In the form of the tincture, it often produces untoward effects, and it is of uncertain power when administered by the mouth. Strophanthin, on the other hand, when administered in the vein, in .5 mgm. to 1 mgm. doses, acts vigorously and promptly on the heart muscle. In impending death from heart

failure the drug given in the vein may save life. Such a dose need not be repeated in twenty-four hours, but recourse may be made to other heart tonics. Tincture of strophanthus acts in some cases, however, with remarkable effect, and seems at times to be superior to digitalis.

Caffein.—This raises blood pressure, acts as a diuretic, increases heart activity, gives the heart a little strength, and uplifts the mental qualities. Caffein citrate in doses from 1 to 2 grains in early morning or noon serves to support the weakened heart after acute infection. The double salt of caffein sodio-benzoate in 1 to 2 grain doses is also used with advantage in such cases. If either mental excitement or irritability of the heart is observed, this drug should not be used.

Strychnin.—Undoubtedly strychnin helps in restoring the failing heart. It cannot be relied upon alone, but used in association with digitalis or alternately with digitalis, it often assists materially in stimulating the debilitated heart. Following heart failure of acute infectious diseases, this drug, by its stimulating action upon the vaso-motor center, serves a most important office. It is peculiarly useful in cases that show respiratory disturbances.

Camphor, alcohol, ammonia are cardiac stimulants. They are not heart tonics. In failure of the heart they may have an appropriate part to play at one time or another. Camphor water, or the spirits of camphor in one or two drachm doses may be given. In an emergency, with imminent danger of acute dilatation, an intramuscular injection of 1 c.c. sterile saturated solution of camphor acts promptly to sustain heart action and to allay nervousness.

Alcohol, not a true heart stimulant, has, when given in strong solution by the mouth, a decided reflex stimulating effect as it passes through the mouth, and esophagus into the stomach.

It must be remembered that its absorption is marked by a depressing effect. However, practically speaking, where arterio-sclerosis, high blood pressure and heart weakness exist, alcohol in the form of brandy or whiskey may be given for its emergency effect, if no better agent is obtainable. Ammonia is also used in these cases with advantage. The aromatic spirits or elixir valerianate of ammonia, in teaspoonful doses, may be given for the transient good effects until more lasting drugs can be administered.

The vaso-dilators. The disabled heart may be helped oftentimes by the judicious use of vaso-dilators. It should be said also that the greatest care should be exercised in using them, for sometimes harm may be done rather than good. By relieving the load upon the heart in reducing the blood pressure, the weakened heart may be rested, but also by increasing the area of vascularization and reducing the accustomed blood pressure in the brain and kidneys, the burden may be increased and the heart more seriously impoverished and embarrassed. The official spirits of nitroglycerin in one to three drop doses, or one to four one-hundredths of a grain of nitroglycerin, or sodium nitrite in one to three grain doses may be given in connection with a cardiac stimulant or tonic. For a more prolonged and continuous effect, some one of the iodine group may be used.

The heart should also get upbuilding drugs, such as iron and calcium. Iron helps a weakened heart. I am fond of using in such cases hypodermic injections of the arsenite of iron, given three or four times a week, although syrup of the iodide, or tincture of the chloride of iron act well.

As calcium is thought to be one of the necessary ions of the blood for maintenance of cardiac action, and as patients who become debilitated lose much of their calcium, it is deemed useful for heart nourishment and action to give lime water, or calcium lactate or calcium glycerophosphate.

What to do in serious heart failure.—Rest for the body, cold fresh air, hypodermic or intravenous injections of heart stimulants or tonics, or venesection, are the general therapeutic agencies most applicable for such an emergency. Strophanthin in doses of .5 mgm. to 1 mgm., or digalen in doses of 8 to 15 minims injected into the veins are the most prompt and effective measures. Hypodermic injections of morphine sulphate and atropine sulphate, and strychnine sulphate, or camphor in sterile oil, act with excellent effect in acute dilatation.

When stasis of the circulation shows a laboring or over-burdened right heart, with low blood pressure, bleeding of one pint or more of venous blood relieves the heart and enables the clinician to tide the patient over.

In conditions of acute dilatations of the heart characterized by low blood pressure, the intravenous or hypodermic administration of epineph-

rin or the pituitary extract (*hypophysis cerebri*) in sterilized solution, as put up in ampules, may be given to advantage.

Treatment of the failing heart from the standpoint of etiology and associated pathology must be briefly stated. Syphilis cases require salvarsan or neosalvarsan combined with or followed by mercury. The intramuscular and, in selected cases, the intravenous-salvarsan should be given in courses. Its administration is essential before the use of cardiac tonics. In acute endocarditis autogenous vaccination may be practiced with advantage. In cardio-renal cases the treatment is more or less to be changed to meet the needs of diuresis, blood pressure and cardiac action. In coronary diseases, so-called angina pectoris, the treatment is rest, regulation of life, diet, and the administration of vaso-dilators.

Functional disturbances, as arrhythmia, Adams-Stokes syndrome, bradycardia, paroxysmal tachycardia, and the treatment of cardiac failure are intimately connected with etiology and pathologic relationship of these factors, and rest primarily upon the discovery of the cause.

Cardio-vascular cases where general arteriosclerosis exists, showing cardiac failure, after considering the etiologic factors, should be treated by elimination, diet, moderation in activity, and lowering of the blood pressure. Heart debility associated with dilatation of the stomach, gastro-enteroptosis, functional intestinal disturbances, diseases of the liver, or obesity, should have the exciting disorder relieved if any permanent good is to be derived in the treatment of the failing heart.

1135 West Franklin Street.

THE MANAGEMENT OF DIABETES.*

By J. D. WILLIS, M. D., Roanoke, Va.
Physician to the Lewis-Gale Hospital.

I was prompted to write this discourse on diabetes mellitus because of the more or less general belief that it is an incurable malady, and that nothing can be done to prolong life.

In health there is maintained in arterial blood an average sugar content of .75 to .85 part sugar per 1,000 parts of blood.

In diabetes there exists a state of hyperglycemia, or excess of sugar in the blood, with a resulting glycosuria, or excretion of sugar in the urine.

*Read before the forty-fourth annual meeting of the Medical Society of Virginia, at Lynchburg, October 21-24, 1913.

We are still ignorant as to how the pathological changes come about. It is known, however, that the fault lies with the sugar regulating mechanism; and recent experimental work has gone far to prove the influence on this mechanism of certain of the internal secretions.

There are three chemically divided foods which are required for our bodily needs; viz., proteins, carbohydrates, and fats. The liver is known to be the sugar regulating organ of the body. Sugar is the principal food for the muscles and an equilibrium is established normally between the demand for sugar and the supply.

The only condition under which normally an increased amount of sugar is thrown into the blood stream is when there is an increased demand on the part of the muscles, as a result of excessive work.

Starches are transformed into sugar in the intestines, and the sugar is then carried to the liver by the portals. All of the sugar in excess of the amount required for use is stored in the liver cells as glycogen, and when it is necessary to call on this reserve, that portion which is required is changed by the action of the enzyme diastase into sugar again.

When the carbohydrate intake is insufficient, proteins are called upon to supply the deficiency; they act principally as irritants to the liver cells and stimulate the formation of sugar. Fats are changed into carbohydrates by the liver cells as a last resort.

In diabetes there is an increased susceptibility, on the part of the liver cells, to the production of sugar. Primary disease of the liver does not disturb the sugar regulating mechanism, while on the other hand primary disease of the pancreas may.

According to the theory described by von Noorden, the pancreas and suprarenal glands are the organs which have most to do with the regulation of sugar formation in the liver. Their actions are one of antagonism.

The internal secretion of the pancreas inhibits the production of sugar; therefore, a disturbance in the pancreas lessening the internal secretion would cause an increase in the production of sugar.

An increase in the production of adrenalin inhibits the antagonistic action of the pancreatic secretion, thereby producing an increase in sugar. Experimentally, the subcutaneous injection of one milligram of adrenalin to an

adult will produce glycosuria within 30 minutes. If, however, it is kept up at the same dosage, the sugar will gradually disappear, but on increasing the dose, will reappear. In this instance the pancreas is caught off its guard and has not enough internal secretion formed to overcome the counteracting effect of the adrenalin. Soon, however, this is overcome by an increased production of pancreatic secretion, and, consequently, the disappearance of sugar.

The action of the adrenals seems to be under the control of the central nervous system through the sympathetics, and does not act of its own initiative. Nerve injuries, nerve toxemias, cerebral irritation, and brain fatigue sometimes are associated with glycosuria. Puncture of Bernard's center in the medulla produces glycosuria by stimulation of the adrenals through the sympathetics.

The association of hyperthyroidism with glycosuria has long been recognized, and the explanation of this interesting association may be, as is claimed by von Noorden, that increased internal secretion of the thyroid inhibits the production of the internal secretion of the pancreas, and in that way may cause glycosuria.

The parathyroids are thought to stimulate the pancreatic secretion and the hypophysis to retard the secretion.

In the light of recent investigation then, the internal secretion of the pancreas seems to have a definite control over the sugar regulation by the liver, it in turn being influenced by the internal secretions of one or more of the other ductless glands.

It is impossible to say that glycosuria is ever caused by nerve influence alone, unless it is inconstant, and the intake of food does not influence the amount of sugar. We should not be too prone to consider transient glycosuria an alimentary glycosuria, for often it is the beginning of a true diabetes.

Carbohydrates are the greatest exciters of the sugar forming mechanism and in diabetes damage its regulation more and more. Later in the progress of the disease acetone and allied bodies are found in the urine, this meaning that the fat metabolism is interfered with. Normally the fat is burned to carbon dioxide and water.

In treatment a restriction of the carbohydrates is essential; they should be reduced gradually until no sugar appears in the

urine, then gradually increased to a point of tolerance. By so doing, the tolerance can be gradually increased in most cases.

It is customary to divide diabetes into groups for treatment, according to the individual's ability to tolerate carbohydrates. Arbitrarily, Nauyn has divided these cases as follows: Mild cases, those which will tolerate a daily 60 gram carbohydrate diet; moderately severe cases, those which excrete sugar in the urine on the 60 gram carbohydrate diet, but who become sugar free on a strict meat fat diet; and severe cases, those who pass sugar on a carbohydrate free diet.

Occasionally there will be found a case where the tolerance for proteins will have to be determined just as carefully as for the carbohydrates.

Diabetics cannot be treated as a class, but must be studied individually to determine their carbohydrate tolerance and susceptibility to other existing influences. The carbohydrate tolerance is determined by putting the patient on a 60 gram carbohydrate diet for a test period; this is usually for 3 days. At the end of this time a 24 hour specimen of urine is obtained and the total amount of sugar excreted during the 24 hours is determined.

In case the urine is sugar free the case may be classed as mild, and a diet prescribed which will not allow more than the 60 grams of carbohydrates daily. It is not necessary to restrict the protein intake in these mild cases. Exercise is generally beneficial in the mild cases, by increasing the burning of carbohydrates. The effects of exercise must be carefully watched, however, in each individual case. Mental worry and fatigue must be reduced to a minimum, as it is equally as harmful as physical over-exertion.

A positive carbohydrate balance is where the number of grams of sugar excreted in the urine in 24 hours is less than the number of grams of carbohydrates ingested. A negative balance is where more grams of sugar are excreted in 24 hours than carbohydrates are taken in. When there is a negative balance the case is a severe one, and it means that sugar is being formed from proteins. With a negative carbohydrate balance there is always acetonuria and loss of weight. In all cases the urine must be carefully tested for acetone and diacetic acid, and when possible the ammonia output estimated.

It is very necessary that the body weight be kept up, so for this reason a more liberal diet will often have to be allowed.

And, again, in case a large amount of sugar is being excreted daily, as much as 100 grams, it would not be safe to at once go on a strict diet. The change must be a gradual reduction.

Where the carbohydrate balance is a negative one, the nitrogen diet must be made low. As an additional source of energy when the patient is on a low nitrogen diet, alcohol may be allowed, not to exceed 40 grams a day, in the form of whiskey, brandy, light wine or claret.

Diets must be arranged to suit the tolerance of each individual case; an occasional green vegetable day, or oat meal day, often are the means of a further reduction in the excretion of sugar.

A series of diet tables showing their caloric values have been arranged by Janeway and are highly satisfactory to follow.

When the urine shows the diacetic acid reaction, it is necessary to give 10 to 30 grams of sodium bicarbonate a day, depending upon the intensity of the reaction.

Certain drugs seem to be of value in treatment of diabetes. Von Noorden claims that the salicylic acid preparations, during their use in mild cases, increase tolerance. Rudisch claims that atropine increases carbohydrate tolerance.

In very severe cases codein may be given with benefit. It should not be given for more than a few days at a time.

The carbohydrate tolerance must be re-estimated at frequent intervals, in order that as nearly a suitable diet as possible may be had at all times.

In elderly people without loss of weight, the carbohydrate tolerance should be estimated at least once a year, and a week of strict diet should be given every two or three months.

Complications arising should be treated in the usual way of handling such conditions.

Labor should not be artificially induced in diabetic women, unless reasons exist which would necessitate it in non-diabetics.

When coma is threatened by the advent of air hunger, lassitude, nausea, and vomiting, carbohydrates and sodium carbonate must be given freely. In diabetic coma large quantities of alkali must be given intravenously, and by mouth if possible. It is well to introduce as

much as a liter of a 4% solution of sodium carbonate into the vein, and repeat in 6 or 8 hours if there is not great improvement.

After the patient comes out of the coma, the management is that of severe diabetes.

Since my attention was called to the use of broth culture of the Bulgarian lactic acid bacillus in the treatment of diabetes by articles of Dr. Benedict and Dr. Horowitz, both of New York City, some nine months ago, I have been using it, in connection with the dietetic treatment, with most encouraging results.

During the past nine months I have used this culture in six cases. Four of these were men past 50 years of age, and it was impossible to get them to diet; in all of these, however, there was a moderate reduction in the amount of sugar they were excreting in the urine.

The other two cases were as follows:

Mrs. P., age 34, entered the hospital for an operation for appendicitis at the fourth month of pregnancy. She was found to have 1% sugar. She was put on a 60 gram carbohydrate diet, and was given 4 c. c. of the Bulgarian culture after each meal. At the end of two days, a 24 hour specimen showed no sugar, but a faint trace of acetone. The diet was gradually increased to a regular tray within 10 days time, and only once was a mere trace of sugar discovered, this being 5 days after entering the hospital. At the end of the 10 days the appendix was removed. On the third day after operation the culture was begun again and continued throughout her hospital stay, the diet being increased as in ordinary interval appendix cases. The culture was kept up for several weeks after leaving the hospital and during this period there was no sugar, acetone or diacetic acid in the urine. I have not had a later report on this case. The patient had shown sugar in the urine on several examinations during the past 3 years.

Dr. J., age 37, has had diabetes for 7 years, with considerable loss of weight; he has been treated scientifically, in some of the best clinics in the East, in one for a period of 2 months. At no time was a 24 hour sugar free specimen obtained.

At the time of starting the Bulgarian culture, a 24 hour specimen of urine showed 1600 c. c. with 1.10% sugar. There was no change made from the accustomed diet. The culture was begun with 4 c. c. after meals and increased

to 7 c. c. after meals at the end of two weeks. There was a gradual reduction in the amount of sugar until the sixth week, at which time a sugar free 24 hour specimen was obtained.

Since that time, during the past 6 months, the percentage of sugar has never been above .0033% and on many occasions has been sugar free. Has lost and gained a few pounds at different times during this period, and at the present time is 4 pounds lighter than at the time of beginning the culture.

I offer this for what it is worth, but am of the belief that the Bulgarian culture has a definite place in the treatment of diabetes.

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Textbook of Medicine; Strumpell.
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A CASE OF CHRONIC INTESTINAL CATARRH OF NEUROTIC ORIGIN.*

By FRANCIS B. BISHOP, M. D., Washington, D. C.

We were consulted March 15, 1913, by Mrs. W. She gave the following history: Age, 42 years; weight, 94 pounds; height, five feet six and one-half inches. With the exception of some of the diseases peculiar to childhood, she had enjoyed splendid health up to the time of present illness. Mother died at 46 years of age from heart disease complicated with bowel trouble. Father died at the age of 60, with Bright's disease. Had had two brothers and two sisters. One sister is still living and is now 37 years old. One brother died at the age of 15 years with typhoid fever; the other brother died at the age of 38, with heart disease. One sister died at the age of 11 years with Bright's disease.

Patient began to have trouble with her stomach fully twenty-five years ago, the first symptom being intense pain as soon as food entered the stomach; hands would become cold, and then, after going to stool, the pain would leave and she would feel all right. This condition lasted four or five months. Up to the time it commenced she seemed to be in perfect health and certainly looked the personification of health, weighing 135 pounds, and having excellent color. When she found it necessary to

*Read before the Medical and Surgical Society of the District of Columbia, October 2, 1913.

call in a physician he prescribed opium, among other ingredients, with some temporary help. Patient then married. The trouble continued; gradually she began to lose flesh, complexion became sallow, and there was much lassitude and depression; diarrhea existed without pain, and in all the years since that she had had the complaint she has never had pain in the stomach or intestines. Practically whenever she went to stool, the actions were loose, and had the appearance of dirty brown dish water; very frothy at times; in fact, it was like turning on a spigot; the odor was nauseating. Then involuntary stools commenced; coughing, sneezing, or just a pressure upon the muscles in the lower part of the rectum, or lifting the hands to the head would produce stool, and even during sleep this would occur, not even awakening her. After resting all night, the stools would be in as bad condition, if not worse than any other time. Never passed blood or undigested food, but much gas. Passed mucus only when bowels were flushed.

For one and one-half years she took pills containing opium three times a day, until she felt in a half dazed condition most of the time, but still kept out of bed by her willpower; another physician put her on raw beef, with the same result, no benefit; another made an examination of the rectum, looking for a possible tumor, but, finding none, said the rectum was slightly enlarged, and if the trouble was not corrected it would probably terminate in consumption of the bowels. For six years she lived upon cocoa, toast, rare steak and lamb-chops, but with still the same result. One physician ordered washing out the stomach, which was tried for nearly two years; she also tried the flush for the intestines. During this period of years there had been some temporary relief; and especially was this true during pregnancy and for some months after child-birth.

Monthly periods had been fairly regular with some pain, lasting about eight days, and always very free. She had been subject to frequent dizzy spells and nausea. Sometimes she would have a sensation as though a ball were rising in her throat to choke her. When food or water was taken into the stomach she was compelled to go to stool immediately.

Physical examination shows patient upon inspection to be very thin and emaciated, with sallow complexion. Skin dry, and lips dry and

scaly. The tongue was fairly clean but abnormally dry, and so was the throat. The spinal column seems normal in contour. The muscles of the entire body are flabby. The deep reflexes are slightly exaggerated. The abdomen is slightly distended with gas. There is some tenderness upon pressure on side of the lumbar vertebrae. No tenderness in palpating the abdomen, the walls of which are flabby, and through which the pulsations of the abdominal aorta are quite perceptible. Pulse rate 70. Blood pressure 110 m.m. Examination of the heart reveals a haemic murmur to the left of costal cartilage between second and third rib. No organic murmur perceptible. Respiration normal with the exception of frequent sighing. There is a slight hacking cough, but percussion and auscultation reveal no lesion of the lungs. Percussion over abdomen indicates the presence of gas in the stomach, and in the small and large intestines. Liver and spleen seem normal as to size. No blood count was made. The hemoglobin test shows 85% hemoglobin.

Urinalysis.—1800 c.c. in 24 hours; color, very pale and cloudy; specific gravity, 1008; reaction acid, mucus present; albumen absent. sugar absent; no bile; no indican; phosphates abundant.

Microscope shows hyaline casts, a few pus cells, and a few uric acid crystals.

The *treatment* was altogether dietetic and electrical. For ten days the patient was not allowed any food except milk inoculated with the bacillus *Bulgaricus*, or good buttermilk, and of this only one quart in twenty-four hours for the first three days. The quantity was gradually increased as she improved, and solid articles of diet were gradually and carefully added. She has not yet been allowed a full meal at any one time.

The electrical treatment consisted of passing through large electrodes (one over the entire back from middle of dorsal region to sacral region and another over entire abdomen) 1200 milliamperes of a current of high frequency and low potential, thereby throwing a great amount of heat through the tissues, dilating the capillaries of the intestines, and thereby encouraging a flow of blood to these organs. Half hour of this treatment was followed by a tonic stimulating treatment from the static machine through the same electrodes in same situations, by the bi-polar application of this current by

the aid of the double extra spark gaps for ten minutes. The treatments were given daily.

The *result* has been more favorable than we even hoped for, or for which we believed we had a right to hope. Within two weeks the diarrhea commenced to improve, and within one month the diarrhea was corrected: so far there has been no return. The patient says she now has one perfectly formed and natural stool each day. She is now able to attend her household duties and to resume her occupation as a typewriter. Weighs 106 pounds and steadily gaining. The condition of this patient after twenty-five years of diarrhea, the absence of pain and tenderness in the bowels, and the fact that no mucus, blood or undigested food has ever been passed, the neurotic and highly emotional temperament of the patient, together with the rapidity with which the disease responded to treatment will, we think, exclude the presence of any serious organic or pathologic changes in the tissues of the bowels, and leaves us only the neurotic origin as an etiological factor. 1913 *I Street, N. W.*

Editorial.

Hemorrhage From Gastric or Duodenal Ulcer.

Hemorrhage from gastric or duodenal ulcer is always a serious matter. The authorities estimate that from three to six per cent of all patients having gastric or duodenal ulcer die from hemorrhage. Thus, von Mikulicz (*System of Practical Surgery*, by von Bergmann & Bull, vol. 4, page 304) says that in gastric ulcer "Leube observed hemorrhage in 46 per cent of his cases. Muller says it was present in 120 cases which came to autopsy, it being the cause of death in 14 of these cases. Welch estimates that from three to five per cent of patients having gastric ulcer die from hemorrhage." Thompson, professor of surgery in the University of Texas, reported two cases of duodenal ulcer in his own practice that died from hemorrhage. (*Transactions of Southern Surgical & Gynecological Association*, vol. XXV, page 249.) In referring to the literature he says Moynihan reports that "in his second series of cases (101) hemorrhage occurred in 49 (almost 50 per cent.)" He also says, "Perry and Shaw estimated that 13 per cent of the bleeding cases end fatally."

Moynihan (*Abdominal Operations*, page 160), divides these cases into four classes. In the first, the hemorrhage is trivial and often inconspicuous. In the second, the hemorrhage is somewhat more severe. In the third group, the hemorrhage occurs after an exacerbation of other symptoms. In chronic cases the hemorrhage is repeated and abundant. "Its persistence and excess cause grave peril and will, if unchecked, be the determining cause of the patient's death." In the fourth group the hemorrhage is overwhelming and lethal.

It is evident that observable hemorrhage occurs in about 50 per cent of all cases of gastric or duodenal ulcer and that about one-tenth of these die solely from hemorrhage. The treatment of this complication, then, is of great importance. In acute cases, the hemorrhage will usually stop under medical treatment, and it is important to recognize acute cases. They occur, as a rule, in young adults and are preceded by symptoms for only a few days or a few weeks at most. The chief symptom is pain, referred to a point between the ensiform cartilage and the navel. If the stomach is emptied and kept at rest for several weeks, acute cases usually do not suffer from recurrent hemorrhage. The chronic cases may occur either in young adults, or the middle aged or old, have a history of indigestion for months or years, and suffer from "nervous dyspepsia" relieved sometimes by soda or food. Here hemorrhage is most dangerous. It is this type that belongs to the third and fourth groups of Moynihan.

The treatment should consist in giving the stomach absolute rest by withholding both food and water and in nourishing the patient by rectum. Duodenal feeding through a small tube may be practiced after the acute danger of hemorrhage is over and when the rectum begins to be intolerant. It must be borne in mind that the principle of the treatment is the same as in incomplete abortion. The uterus is emptied in the latter instance to permit the contraction of its walls, thus closing the vessels. Keeping the stomach empty does the same thing. If bleeding persists or recurs, particularly in chronic cases, operation should be done. The pylorus should be folded in on itself with sutures and a posterior gastro-enter-

ostomy by the no-loop method performed as quickly as possible. The folding in of the pylorus produces some pressure upon the ulcer and the gastro-enterostomy drains the stomach and keeps it collapsed. If the hemorrhage is large in quantity, persistent, and recurrent, particularly in the middle aged, and if the patient seems too anemic to stand an immediate operation, transfusion of blood should be done, followed immediately by gastro-enterostomy and closure of the pylorus. Here transfusion renders operation comparatively safe. With the waiting method in such cases, as shown by the authorities quoted, death will often occur from hemorrhage or the resulting anemia may produce nervous and mental symptoms as has been pointed out by Crile.

J. S. H.

State Board of Medical Examiners of Virginia —List of Successful Applicants.

As we go to press the report of the December, 1913, meeting of the Board has just been received. For the satisfaction of those especially interested, we append the names of the successful applicants, and will have the report of the meeting in our next issue.

- Arbeely, Abraham Joseph, Vienna, Va., Royal Medical College of Constantinople and American Protestant Medical College of Beirut, Syria, 1874.
Board, J. Arnold, Philadelphia, Pa., Medical College of Virginia, 1913.
Critchler, Charles E., Birds Nest, Va., Medical College of Va., 1913.
Coker, Sarah E., Farmville, Va., Woman's Med. College of Pa., 1908.
Cutler, John Calvin, Norge, Va., Northwestern Medical College, Chicago, 1899.
DeSaussure, Richard L., Mine Run, Va., George Washington Univ., 1913.
Ely, T. B., Jonesville, Va., Medical College of Va., 1912.
Eckhardt, John Carl, Petersburg, Va., George Washington Univ., 1912.
Haskell, Charles C., Richmond, Va., Harvard University, 1908.
Jones, Marie J., Richmond, Virginia, College of P. & S., Chicago, Ill., 1912.
Jones, Paul T., Pulaski, Va., University of Virginia, 1872.
Lee, Francis H., Richmond, Va., Medical College of Va., 1913.
LeFevre, Willis H., Lancaster, Pa., Medical College of Va., 1913.
Miller, Knox E., Richmond, Va., Johns-Hopkins Medical School, 1912.
McNeer, Thomas T., Dante, Va., University of Pennsylvania, 1913.
Mauck, Henry Page, Richmond, Va., Medical College of Virginia, 1913.
Newcomb, William B., Norfolk, Va., Johns-Hopkins Medical School, 1910.

- Nelson, John Jr., Columbia, Va., Medical College of Virginia, 1913.
Oglesby, Nicholas P., Columbus, Ohio, Starling Medical College, 1904.
Padgett, Hubbard Corbin, Huddleston, Virginia, Medical College of Virginia, 1913.
Robnett, Ausey H., Newport News, Va., George Washington University, 1905.
Redwood, Frank Harrell, Richmond, Va., Medical College of Va., 1913.
Sibold, A. L., Newport News, Va., Maryland Medical College, 1909.
Tabor, Mack Henry, McDowell, W. Va., University College of Medicine, 1910.
Taylor, William B., Raines, Virginia, Leonard Medical College, 1912.

The Southern Association of Railway Surgeons

Was one of the branch associations organized at the last meeting of the Southern Medical Association in Lexington, Ky., in November last. It is arranged that this association shall convene annually, a day prior to that set for the meeting of the Southern Medical Association, and will continue sessions until completing its program. All members joining before or at the meeting in Richmond, next November, will be known as charter members. Membership in the Southern Medical is a prerequisite to membership in the Southern Association of Railway Surgeons, no additional dues being charged for membership in the latter. Drs. Duncan Eve, Nashville, Tenn., and Clarence H. Vaught, Richmond, Ky., were elected the first president and secretary, respectively.

Dr. J. F. Armentrout,

Who has for several years been engaged in radiographic work in Staunton, Va., has just located in Roanoke, Va., Ferguson Bldg., and will limit his practice to radiography and radiotherapy. His office is equipped with the latest type of X-ray apparatus.

Internships Won Through Competitive Examination.

Six of the seniors of the Medical College of Virginia, were among the winners of internships in New York City Hospitals by competitive examination early in March. The following appointments were made from the Richmond School:—Joseph Smith and Nelson Mercer to Gouverneur Hospital; E. L. Flanagan and Fauntleroy Flinn to Kings County Hospital; A. C. Sinton, Jr., to Hudson Street Hospital, and V. H. Carson to New York City Hospital on Blackwell's Island. The competi-

tors were from twenty of the most representative colleges in the United States.

Dr. Hugh M. Taylor,

Of Richmond, who was recently operated on for tic douloureux, has greatly improved.

New Surgeon-General for the U. S. Navy.

Medical Inspector William C. Braisted has been appointed by Secretary of the Navy as Surgeon-General of the U. S. Navy, to succeed Surgeon-General Chas. F. Stokes, whose term of office expired in February. Surgeon-General Stokes was highly complimented by the Secretary for the splendid work done during his administration.

Dr. A. Murat Willis,

Richmond, who recently suffered a Pott's fracture of the left ankle, as a result of a fall on ice, has been at work since a few days after the accident, though he is temporarily wearing a plaster cast.

New Hookworm Inspector.

Dr. A. P. Traynham, of Richmond, a recent graduate of the University College of Medicine of this city, was appointed to succeed Dr. K. E. Miller as hookworm inspector for the Virginia Health Department. He was assigned to work in Rappahannock and Page Counties.

Dr. Miller, who has been connected with the Health Department for the past two years, recently resigned to enter the United States Public Health Service, and entered upon his duties early in March.

Mr. T. A. Miller,

Of this city, has been appointed by Governor Stuart to succeed himself as a member of the Board of Pharmacy of Virginia, for the term of five years beginning March 1, 1914.

Dr. T. D. Crothers Again Complimented.

Dr. T. D. Crothers, Hartford, Conn., was recently re-elected president of the New York Medico-Legal Society, as a token of the esteem in which he is held by the members.

The Virginia Health Almanac,

Established four years ago, has just made its appearance for 1914, and owing to its great and well-deserved popularity, those desiring copies should apply at once to the Virginia Health Department, 1110 Capitol Street, this

city. It is sent free upon request. It contains a page as to "What the State Board of Health does for the Citizens of Virginia," which furnishes much useful information and will be an eye-opener to many as to the great amount of valuable work done by this department.

Language Conversation Tours.

The main purpose of these tours is to learn to speak the language of the people in addition to securing a summer vacation. The most attractive features of European travel will be covered, the greater portion of the time being spent in France, Germany or Italy, according to the selection of the individual, as the Tours will be divided into three sections. Dr. and Mrs. Charles F. Mills, of South Framingham, Mass., will be in charge of the French section, the leaders of the German and Italian sections to be announced later. A French professor will accompany the party, which will afford an opportunity of practice in conversational French without additional cost. All three sections will sail from New York, June 25th, the trip to be for 65 days. Full particulars may be obtained from Dr. Mills, or the Boston Travel Society, 601 Boylston Street, Boston.

The Travel Study Tour of Southern Surgeons,

Under the auspices of the Georgia Surgeons' Club, has planned its itinerary to include attendance upon the Clinical Congress of Surgeons of North America, which convenes in London, England, July 27th to August 3rd, 1913. The foremost surgical clinics in the capitals of Europe will be visited and clinics will be had in Baltimore and Philadelphia, before sailing from New York June 13th. Further information may be obtained from Dr. R. M. Harbin, Rome, Ga., Secretary of the Georgia Surgeons' Club, or from McCann's Tours, 1328 Broadway, New York City.

The American Society of Physicians' Study Travels

Will have its first annual tour immediately after the A. M. A. meeting at Atlantic City, from June 26th to July 16th, inclusive. The party will be limited to 125, and will cost \$180 per capita. It will include visits to a large number of the northern and eastern cities and health resorts and several places in Canada. Dr. Albert Bernheim, 1225 Spruce St., Phila-

delphia, the secretary, will furnish detailed information.

Dr. T. Edwin Baird,

Of Norfolk, Va., has been appointed by Governor Stuart to be medical quarantine officer for the Elizabeth River District for a term of two years, beginning March 10, 1914.

Dr. J. W. Long,

Greensboro, N. C., has given through the Foreign Missionary Board of the Methodist Episcopal Church, South, a sum of money for the erection and maintenance of a hospital in South Africa, for the study and treatment of diseases indigenous to that section. This hospital is intended as a memorial to his daughter, Miss Mary Long.

The Thompson-McFadden Pellagra Commission

Will resume its work in the study and care of pellagrins at Spartanburg, S. C., March 1st.

Dr. B. D. Spalding,

Who formerly made his home in this city, but more recently in Maryland, has returned to Richmond, and has offices at 400 East Franklin Street.

Women as Internes in Hospitals.

The new appointments recently made from among the seniors for Johns-Hopkins Hospital, for year beginning September, included two women. Two women have also successfully passed the examination for admission to the interne staff at Bellevue Hospital, New York, and the question of their appointment is now before the Board.

Clinical Lectures and Demonstrations.

The Governors of the N. Y. Skin and Cancer Hospital, Second Avenue and 19th Street, announce a course of clinical lectures and demonstrations in the out-patient hall of the Hospital on Wednesday afternoons of April, beginning the first day of the month, at 4:15 o'clock. On each of these afternoons, Dr. Bulkley will speak on some phase of syphilis, and on Thursday, the 30th, Dr. Wm. Seaman Bainbridge will speak on some practical phases of the cancer problem. The lectures will be illustrated by cases, models, colored plates, photographs, etc., and will be free to the medical profession, on presentation of their professional cards.

Dr. John A. Davis,

Formerly of Bedford City, Va., but more recently of Carbondale, W. Va., has moved to Charleston, W. Va.

A Typhoid Epidemic

Has been announced through Montreal, along the Richelieu River in Quebec, there being 400 cases in the municipalities along that river and a large number in other localities close at hand.

Washington to Have New Hospital.

Washington, D. C., is to have a new Emergency Hospital and plans for its construction have already been prepared. It is planned to have the hospital include three operating rooms as well as all up-to-date features.

The Zeta Delta Delta Chi Fraternity,

Gamma Chapter, held their annual banquet at the Jefferson Hotel, Friday night, February 27th, with a large attendance of active and honorary members. Dr. F. H. Beadles, of this city, acted as toastmaster.

Vital Statistics of Lexington.

Dr. Robert Glasgow, health officer, Lexington, Va., in his report of vital statistics for 1913, states that there were 68 births and 52 deaths. The death rate per 1,000 was 16.4, or 13.7 for the white population and 20 per 1,000 for the colored. The only case of typhoid fever reported for the year was one imported from a neighboring county for treatment.

Dr. Thos. B. McClintic's Widow

Was recently granted by the U. S. Senate, a two years' salary, amounting to \$5,570. This was done owing to the fact that Dr. McClintic, who was a passed assistant surgeon in the U. S. Public Health Service lost his life from spotted fever contracted while studying that disease in the Rocky Mountains.

Repeal of Special License Tax on Virginia Physicians.

AS WE GO TO PRESS, WE ARE INFORMED BY DR. GEO. A. STOVER, CHAIRMAN OF THE LEGISLATIVE COMMITTEE OF THE MEDICAL SOCIETY OF VIRGINIA THAT THIS BILL HAS JUST PASSED THE VIRGINIA HOUSE OF DELEGATES BY A VOTE OF 60 TO 14, HAVING PREVIOUSLY PASSED THE SENATE BY A VOTE OF 30 TO 3. IT NOW GOES TO THE GOVERNOR FOR HIS SIGNATURE, AND WE HOPE IN OUR NEXT ISSUE TO BE ABLE TO ANNOUNCE THAT IT HAS RECEIVED HIS APPROVAL.

Wanted—Position as anaesthetist in a private or general hospital. Am a graduate registered nurse, with a year of post-graduate instruction at the Post-Graduate Hospital of Chicago. Can furnish reference as an anaesthetist. Address, *F. L. D., care this journal.*—(Adv.)

For Sale—A \$2,500 practice, in rich agricultural and mining section of Southwest Virginia. Railroad town of 500. Surrounding country thickly settled. Collections good, competition light. Price of drugs, etc., amounting to \$500. Will rent or sell real estate. Good reasons. Be quick. Address "D. E.", care *Virginia Medical Semi-Monthly.*—(Adv.)

Obituary Record.

Dr. William Laville Robinson,

One of Virginia's, as well as Danville's, most beloved and honored citizens, died at his home in Danville, March 1st, after an illness extending over several years. He was born in Cumberland County, Virginia, February 14, 1845, and while still a boy entered the Confederacy, and saw service with the cavalry. In a battle at Mitchell's Station, his horse was shot down, and he was wounded and captured. After he was paroled and allowed to return home, he entered the University of Virginia, from which he obtained his M. D. degree in 1868, and then located in Danville, where he had since made his home. He won the esteem of the whole community and many honors from the profession. Dr. Robinson was a member and ex-president of the Medical Society of Virginia, the South Piedmont Medical Society and the Tri-State Medical Association of the Carolinas and Virginia, and was for a number of years connected with the Danville Board of Health and the Medical Examining Board of Virginia. He was married in 1872, his wife dying a number of years ago. He is survived by four children, one of them Dr. Julian M. Robinson, of Danville.

Dr. Samuel Rush Sayers,

One of the most highly esteemed and beloved citizens of Wytheville, Va., died at his home in that city, February 23, after an illness of sev-

eral weeks. He was born near Max Meadows, Va., June 2, 1833. After a collegiate course at Emory and Henry College, he studied medicine at the University of Virginia and the University of Pennsylvania, graduating from the latter in 1855. At the beginning of the War between the States, he enlisted with a local company, and became surgeon of the Twenty-seventh Regiment of the Stonewall Brigade. With the exception of the three months he was imprisoned at Fort McHenry after the Battle of Gettysburg, he served throughout the war, and made for himself an enviable record. After the war, he again located in Wythe County where he continued the practice of his profession until he retired in 1894. He was prominently identified with the medical interests of the State, represented his county in the Legislature for three terms and was for many years president of a local bank. Three children, one of them Dr. W. S. Sayers, of Roanoke, survive him.

Dr. George Lloyd Magruder,

Of Washington, D. C., died in that city, from heart trouble, January 28th, aged 65 years. He graduated from the Georgetown University School of Medicine in 1870, and had for a number of years been prominently identified with the medical and civic interests of Washington. He was formerly dean of the Georgetown University School of Medicine, and at the time of his death was emeritus professor of materia medica and therapeutics at the same school. Dr. Magruder did most excellent work in the campaign for the pasteurization of milk in Washington. His widow and two children survive him.

Dr. Edward C. Spitzka,

Famed as alienist, neurologist and anatomist, died at his home in New York City, January 13th, of apoplexy, at the age of 61 years. He studied medicine at the N. Y. University Medical College, and graduated in 1873. Dr. Spitzka was a member of a number of local and national societies, and had written on a variety of medical subjects.

Dr. George A. Coggeshall

Died at his home, Oxford, N. C., January 29th. He was graduated from Bellevue Hospital Medical College, New York City, in 1879, and was prominent among the medical profession in his section.

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HIGH BLOOD PRESSURE, AND ITS MANAGEMENT.*

By J. ALLISON HODGES, M. D., Richmond, Va.
Professor Clinical Neurology and Psychiatry, Medical
College of Virginia.

So many cases of organic and functional nervous disease have been shown in this clinic that it has been decided today to vary the routine and discuss not a disease, but a symptom of disease only. This is an unusual procedure, but the distinction which has of late been accorded this symptom, namely, vascular hypertension, both in the literature and in contemporary practice, and the frequency of its occurrence in nervous diseases, appears to merit this attention on our part. In fact, many of us have apparently treated this symptom as a disease *per se*, and regardless of its significance, have, in our ill-advised enthusiasm, endeavored to control it immediately in every patient at any cost.

This is but another illustration of that faddism which occasionally dominates medical and surgical practice, and leads us to speed our special "favorites" at a fast and furious pace.

Fortunately for our patients, the race has been about run, and it now behooves us to calmly survey the field, and correctly estimate the results obtained.

Vascular hypertension is a frequent symptom of disease, as you have seen many times in this clinic, but I believe that its presence and significance have often been much overrated and magnified, and that too much importance has been attached to it, and too energetic efforts used to combat and control it. Its discovery,

if I may so term it, is a most interesting by-product of the use of the clinical sphygmomanometer, and like most new discoveries, it has taken time for a proper estimation of its meaning. Its recognition, early recognition, is of the greatest value in enabling us to institute preventive measures by which to control it and combat its later effects, but when discovered, we must not allow the magnitude of this one symptom to engross our therapeutic attention to the exclusion of some underlying morbid process which, though obscured at the time, may be the sole cause of the symptom that is so prominent, and apparently so pernicious.

Consequently, it is our manifest duty to examine thoroughly every patient offering for treatment, and if this symptom of hypertension presents itself, endeavor to ascertain its genesis and significance. It is a symptom which may be present in many different diseases, but most often attention to its presence is attracted by the associated nervous symptoms which distress the patient. Speaking broadly, these may be classed under two general heads, namely, those of a congestive, and those of a depressive type. I am exhibiting to you now two illustrative cases, the one with a persistent average systolic hypertension of about 200 m.m. Hg. and a diastolic pressure of about 125 m.m. Hg., with a congested face, full and rapid pulse, frequent vertigo, some dyspnoea at times, and intermittent headache; the other, with a confirmed systolic blood pressure of about 165 m.m. Hg. and manifesting an entirely different set of symptoms, which, in the main, are indicative of a pronounced mental depression and psychic debility.

These two cases illustrate what has already been said as to the importance, also, of properly accounting for this symptom, for the first case has been found, after a careful study of

*Clinical lecture delivered in Memorial Hospital Amphitheatre, February 28, 1914.

all its clinical features, to be due to a remote syphilitic infection, while the other is supposed to be due to the presence of an irritating uratic calculus, discovered in the left ureter by means of the cystoscope.

While both of them have a persistent vascular hypertension, and have marked nervous symptoms, yet neither of them are nervous diseases, nor likewise will they respond to the usual therapeutic measures directed to the immediate and direct control of the hypertension, for the basic cause of this symptom in each case is much more intangible and difficult of removal.

Hypertension is in a sense a relative term, and while a definite standard may be assumed as normal for individuals in perfect health, yet it is a nice question in many cases to decide under certain existing conditions, whether the tension in the given case above the normal limit for that age is as ominous as it may appear, and should be controlled at all hazards.

From my experience, I should unhesitatingly say that in the study, as well as in the practice, individualization in these cases must be the rule, for in no other way can any measure of precision in treatment be secured.

The mere existence of this condition must always cause anxiety, for if too little is done, a possible catastrophe through the rupture of a weak blood vessel is possible, or if too much is done, we are confronted with the possibility of weakening the circulatory force, and thus inviting another danger, but late investigations have proved conclusively that high blood pressure is primarily compensatory, and it is left to us, after a most thorough study of each individual case, to determine for that case, the true meaning and status of such a condition of super-normal tension.

For some years after the introduction of the sphygmomanometer and the consequent normal blood pressure standards that were agreed upon, I valiantly attacked every super-normal tension that I encountered, and really believed that this was vitally imperative, if any should by chance reach such a limit as even 160 mm. Hg. for any age, but my super-scientific ardor has of late waned, especially since, when I had time to study my tabulated results, I found that many of my cases of hypertension could not be reduced below a certain figure (which by the books was still notably excessive), and that

still others did not die, which by all scientific rules then promulgated, they should have accommodately done! Neither did I know then, as I believe now, that there may be in some rare cases, vascular crises incident to generalized intermittent claudication, that are incapable of remedy or relief.

In the light of recent experience, it is necessary, then, that we readjust our former views, and in every case take a most careful history, and at the same time make a most complete investigation of the cardio-vascular-renal and alimentary systems, so as to determine the cause of the hypertension, if it be present.

In addition to this examination for organic lesions, we must consider fully in each case, the personal equation as to syphilis, lead, gout, rheumatism and malaria, and also note carefully the life and habits of the individual as to "overwork and overworry, especially in combination with over-eating, under-exercising and under-sleeping, plus the possible influence of alcohol and tobacco," for these conditions themselves, independent of organic causes, may bring about in at present some unknown way an intravascular, intracerebral and intraspinal hypertension that will later eventuate in an arterio-sclerosis of all the organs.

It is entirely obvious, then, that the all-important thing is not only to recognize this condition when it is present, but to value it only according to its particular significance in the special case under consideration. .

Fortunately, clinical research has demonstrated a physical as well as a therapeutic test, both of which are of service in determining whether the pressure is confirmed or recent, as follows: If the left ventricle is hypertrophied, it is almost proof positive that the pressure has been persistently high for months or years, but if the restriction, or temporary omission of red meats and alcoholic drinks from the dietary of those who use them freely, diminishes the pressure notably, the inference is that the condition is recent and probably of a toxic origin, and that it is of more favorable prognosis as to control. It is now believed that in many cases, the increase in blood pressure is gradual, and that the individual readjusts his cardio-vascular mechanism to compensate this, and, consequently, that to arbitrarily set up a physiological standard for the normal systolic pressure, as formerly, of 110 to 140 mm. Hg. for

ages from 18 to 40, and 140 to 165 mm. Hg. for ages from 40 to 70, and to reduce in all cases the existent pressure to this fixed physiological limit is not only not indicated nor justified, but is harmful therapy, for the hypertension, even at 200 mm. or more in some cases, is the result of pathological causes and conditions which cannot be remedied nor removed, and the existing hypertension must be accepted as a compensatory effort on nature's part to supply sufficient blood to certain damaged vital organs, and as one of her natural defenses.

Dr. Piersol says that "in the two most important conditions associated with hypertension, chronic nephritis and arterio-sclerosis, it has been shown that in the former the high blood pressure is essential in order to maintain adequate elimination through the damaged kidneys, and in arterio-sclerosis the elevated pressure helps increase the circulation in organs whose nutrition is impaired because of their diminished blood supply."

These attempts on the part of nature to balance the organism, if the under-lying cause be only irritant in character, may produce only an arterio-spasm and be easily remedied, but if more fundamental degenerative changes have taken place in the vessel walls, more serious damage in all of the organs may occur, and a blood pressure which was primarily compensatory, may become persistent and pernicious.

Theoretically, the prevention of this tendency would appear easy, but practically it is most difficult. Nevertheless, since this condition results principally from lesions in the kidneys or blood-vessels, the treatment of vascular hypertension should be directed to prophylaxis of these conditions, and if this is impossible, to the management of the hypertension when once developed because of them. The prophylaxis of high blood-pressure is most important, and calls, therefore, for the early recognition of the conditions and causes which tend to produce kidney disease and arterio-sclerosis, so that these diseases may be treated in time to prevent grave secondary changes, after which, therapy of any kind is of little avail.

No one can know definitely a given individual's capacity to withstand a specified hypertension, but clinical experience has demonstrated that a persistent excess of vascular tension above a well defined point in the average

patient is dangerous. The existing tension, however, cannot be treated unless it is first ascertained by the routine examination of every patient, no matter what the supposed disease may be, but fortunately this is as easy in practice as it is rational in theory, for to-day the sphygmomanometer is, or should be, within reach and one of the routine procedures of every practitioner. With it as a guide for the estimation of both systolic and diastolic blood-pressure, few cases of nephritis or arterio-sclerosis, even in their early manifestations would be overlooked or undiscovered, and its routine use in every case would detect the danger signals which nature is flying, in time to abort or modify them.

In fact, the importance of this routine blood-pressure determination cannot be too strongly emphasized, for this, in my experience, is the only time when our therapeutic efforts will be rewarded, but unfortunately it is the very time when the fewest cases are discovered or treated.

When vessel spasm alone is present, the outlook is hopeful and encouraging, and every effort should be made to institute such treatment as will prevent the occurrence of organic changes.

The management of high-blood pressure cases may be considered under two heads—Developing Hypertension, and Confirmed Hypertension.

Developing Hypertension.—The treatment of this condition is apparently simple in technique, but practically very difficult in application. It requires but few drugs, and yet much patience and perseverance on the part of the physician, as well as an enthusiastic and sustained co-operation on the part of the patient. In a word, it is largely protective and hygienic, and demands *first*, a thorough understanding by the patient of his condition; *second*, the restriction of red meats and alcoholic drinks, as well as other cardiac excitants such as coffee, tea and tobacco from the dietary of those who take them freely, the intake of nitrogenous foods being lessened, as well as the total bulk of food reduced; *third*, the output of waste products should be promoted by all excretory channels such as the bowels, kidneys and skin; *fourth*, exercise, which should be graduated to the needs of each case; *fifth*, overwork and mental stress should be regulated and enforced; *sixth*,

rest at stated periods, free from all irritations and interruptions; *seventh*, the removal of any source of local infection, if such be present, and *eighth*, the submission of the patient at stated intervals for physical examinations and blood-pressure readings.

These requirements need not, in this presence, be discussed in detail, but their correct enforcement spells success or defeat in the management of every case of developing tension. If, after their thorough application for at least one month, the tension still persists as super-normal, the case may be considered as one of confirmed high tension, and its underlying morbid source should be further studied and treated.

Confirmed Hypertension.—The conditions which make for a developing hypertension will, of course, if unchecked, cause a confirmed vascular hypertension, and the management of these latter cases, especially when dependent upon some well-defined, irremedial anatomical change in the organism, is both difficult and unsatisfactory. In this class of cases, as in those of the developmental type, the characteristic and dominant lesion is renal or vascular, as the underlying cause is usually toxic.

Consequently, to benefit them, we must aid nature to sustain the proper compensatory hypertension, by decreasing the production of the toxic agent only to a point where its effects shall not be increasingly destructive and degenerative. This is best accomplished by the following measures:

1. *Drugs*.—While the range of medicinal means is a limited one in the treatment, yet there are certain indications which can be met only by suitable drug medication. In the first place, mild aperients, which give at least two daily actions of the bowels without straining are of extreme importance. The best of these is liquid albolene or pure paraffin in tablespoonful doses night and morning, or both, alternating in some patients with a medium dose of some one of the mineral waters, given hot every second or third morning.

Frequently, one to two grains of calomel, or five to ten grains of blue mass, once a week, followed by a mild saline, is of great benefit in some cases.

Only in emergencies, such as angina or nocturnal dyspnoea, are drugs of the vaso-dilator type, such as nitroglycerin, sodium nitrite,

erythrol tetranitrate, etc., to be used. The iodides should be given very sparingly and in small dosage, never over three grains once or twice daily, unless there is a pronounced and persistent headache, or a syphilitic history, when they may be pushed to physiological limits.

In the high tension occurring at the menopause, the combination of iodides and bromide is of great service. In cases where cardiac weakening is developing, and there is present distressing dyspnoea and vertigo, digitalis in small doses is very effective, paradoxical as it may appear. If dropsical conditions appear, diuretin is of decided advantage. In obese patients, two grains daily of thyroid extract, are beneficial in reducing weight and relieving excessive tension. Large doses, or even an excess of ten grains a day, in my experience, are, however, decidedly dangerous. The glycerophosphates are the best tonics for these cases.

2. *Elimination*.—This can best be secured by a strict regulation of the intake, and by providing an active outlet for the waste products. All of the excretory channels must be utilized, and the kidneys, bowels and skin must have constant attention in order that these chief avenues through which elimination may be obtained may each individually do its full duty. The food supply should not exceed the patient's ability to digest, and the residue should not be allowed to decompose. Violent cathartics should never be given, but rather simple aperients, such as have been mentioned, which will secure definite drainage without straining effort.

Water, either plain, or with lemon juice, and preferably hot, should be taken regularly every day, to the amount of at least one quart between meals, but at meals not more than six ounces should be taken at a time.

The condition of the skin, also, requires careful attention. The cold bath is inapplicable, but a daily tepid or warm bath for eight to ten minutes will be of great advantage.

Turkish baths, especially the use of the steam rooms, should be used with great caution. Electric light baths should likewise be used with great discretion, for both of these may be depressing and dangerous. Excessive sweating is usually harmful, and short electric light baths, or simply hot baths, or occasional hot packs are usually sufficient vigorous methods in skin elimination.

Vapor baths alone, without the use of water following them, are invariably weakening and harmful.

The application of electricity in any of its forms has not been markedly beneficial in these cases in my experience.

The frequency with which any of these measures may be used should be governed entirely by indications in the individual case.

Venesection is of undoubted value in the emergency treatment of some of these cases, but as a routine procedure, it is not applicable, for, to be of any continued benefit, it would have to be repeated too frequently.

3. *Dietetic.*—Just as in cases of developing hypertension, so in the confirmed cases, diet is of the utmost importance. The aim should be to reduce gradually the quantity of food to as small an amount as is sufficient to keep the patient in good condition. He should be instructed to eat regularly and slowly and to thoroughly masticate his food and to make the midday meal the heaviest. Most people eat too much and especially too much butcher's meat, and a diet of fish, poultry, vegetables, cheese, milk, oatmeal, stale bread or corn bread, together with farinaceous puddings, butter milk and the smallest possible amount of salt in these foods, will give the best results.

If the patient is obese, special diet should be considered as necessary in such a case. In all cases, alcohol, tea and coffee should be limited or prohibited, for they are cardiac whips which do serious injury to the cardio-vascular system.

Practically, it is sometimes almost impossible to have a patient discard these stimulants and excitants, and in such cases a small amount of whiskey, never over one and a half to two ounces a day, can be given, or its equivalent of dry sherry, and in tobacco cases, if there is tachycardia, palpitation or angina, tobacco should be excluded absolutely, but in other cases where its disuse causes great discomfort, two ounces of smoking tobacco may be allowed weekly.

In all cases, however, when practicable, the discontinuance of these stimulants, is generally followed by marked improvement.

4. *Rest and Hygienic Conditions.*—In confirmed hypertension, no agent is more efficient than rest, and usually prolonged rest in bed.

Periods of rest and quiet during the day, and

certainly eight hours each night, are of the utmost importance in these cases.

The prevention of all possibility of sudden strain and the avoidance of everything tending to produce fatigue, and especially mental fatigue, should be insisted upon.

The difficult cases to advise are those leading strenuous lives of great mental activity, and such cases must demand special attention and consideration, for if they be attended by cerebral congestion, it will be necessary to enjoin absolute rest from all mental work for a stated period, or otherwise, no other treatment will be of avail.

This can be managed in many ways, but tact, decision and thorough co-operation must be utilized.

As the patient improves, more latitude can be allowed and moderate exercise in the open air may be taken. Residence at the seashore is not to be advised, nor are altitudes above 1,500 or 2,000 feet advisable.

Walking or riding in the open air are to be advised cautiously, according to the blood pressure determination after such exercise, and if improvement continues, such exercise as golf, etc., in moderation, may be indulged in. The point always to be considered is that exercise should never go to the limit of tire, for any exercise plus this point means fatigue and exhaustion.

Rest is only a figurative and comparative term when applied to the physical economy, but none the less, only in so far as a certain degree is obtainable, is the attempt at treatment worth while.

Consequently, the sum and substance of all our efforts to prevent, or cure vascular hypertension must resolve themselves into rational measures for the conservation of cardiac nervous tone, for without this, nature cannot repair her damaged machinery, nor restore and maintain her circulatory balance.

THE CLINICAL EFFICIENCY OF PHYLACOGENS.*

By PARRAN JARBOE, M. D., Greensboro, N. C.
Urologist and Genito-Urinary Surgeon to St. Leo's Hospital.

Recent medical literature has so fully described the phylacogens and the theory of Dr. Schafer, their originator, that it is scarcely

*Read before the Guilford County Medical Society, at Greensboro, N. C., January, 1914.

necessary to more than mention certain salient features. As is more or less well-known these preparations are composed of the sterile filtrate from a great variety of bacteria and are based on the belief of their author that every infection is a mixed infection. This theory, which Dr. Schafer does not claim as his own, has been apparently established by a number of careful observers. In any event, it appears sufficiently logical so that it may be taken as a satisfactory working basis in endeavoring to combat infectious diseases.

Far more important, however, than the theory upon which the employment of phylacogens is based, is the fact that they are therapeutically efficient. It is this that interests the physicians engaged in the actual practice of medicine. What are the clinical results of these comparatively new biological products? Are they therapeutically efficient? Will they control infectious processes more efficiently or more quickly than will the usual and older methods of treatment?

These questions the medical practitioner wishes settled, and every bit of evidence it is possible to find makes us that much nearer the correct answer.

Before giving illustrative cases I wish to say a word or two concerning the administration of phylacogen.

All who have followed current phylacogen literature are aware of the fact that a dose of sufficient size, given subcutaneously or intravenously, produces a response on the part of the body which, for want of a better name, has been called a "reaction." A local reaction which follows only after phylacogen has been injected subcutaneously comes on a few hours after the dose has been given and consists of pain, redness, and swelling at the site of inoculation. The intensity of these symptoms varies considerably in different patients. Large doses given subcutaneously or relatively smaller doses intravenously produce a constitutional reaction manifested by chill, nausea, headache, diarrhea, abdominal cramps, numbness, etc. These symptoms likewise vary in intensity depending upon the size of the injected dose and the exact amount of response the patient makes to phylacogen therapy.

What I wish to say concerning these reactions is that I always endeavor to avoid them and I think I get fully as good results without

them as I would were they present. I begin with a small dose and increase the size of subsequent doses very gradually.

The following cases by no means comprise all that I have treated with one or another of the phylacogens. My object is simply to give in detail a few case reports each one of which represents a class of diseases which are commonly found in daily practice. What my results have been the following cases amply testify.

Case 1.—F. W.; aged 32; male; married; traveling salesman. Had gonorrhea four years ago, apparently well up until six weeks ago when he noticed a morning drop. Says he has not exposed himself within the past six months. No history of any other illness. Patient suffered from frequent and painful micturition. Temperature 102°, pain all along course of urethra and in perineum. Great pain when bowels move. Has to get up every hour during night. Slight urethral discharge, prostate size of a lemon and acutely tender. Points of fluctuation in each lobe. Gonococci abundant in smear. Pus and shreds in all three glasses.

Diagnosis.—Acute prostatitis.

Patient was sent to St. Leo's Hospital and put to bed. Rectal irrigations with hot solution for one-half hour twice daily were given. Hot water bag to perineum; urinary sedatives. By gentle pressure quantities of pus were expressed from the prostate through the urethra. Gonorrhea phylacogen was commenced with 3 minims intravenously the first day. For the next seven days two doses were given daily, all intravenously, until the maximum dose of 15 minims was reached. For the next five days one dose of 15 minims was given daily. Patient had three severe chills with elevation of temperature following. The irritable bladder promptly subsided and the prostatic condition cleared up. On the tenth day the patient resumed his work. He was kept under observation, massaged, irrigated, and phylacogen was given twice a week for six weeks. There were no gonococci found in the smear at that time, or further evidence of his perineal trouble.

No doubt the phylacogen was the determining factor in clearing up this condition so promptly.

Case 2.—F. L., aged 30; male; married; musician. Patient had gonorrhea for the first time six weeks ago when he treated himself

with drug store remedies. Says discharge stopped three weeks ago, but returned in another week. Left testicle began to swell one week ago. He has had no previous illness.

Left testicle size of an orange and extremely painful. Temperature 100.8; tenesmus about bladder with painful micturition. Epididymis greatly enlarged and tense, very tender on examination. Slight urethral discharge and shreds in first urine.

Diagnosis.—Acute epididymitis.

Patient was put to bed and, owing to the severe pain and tenseness of the capsule, epididymotomy was done which resulted in prompt relief of symptoms. Gonorrhea phylacogen was begun on the third day with 3 minims intravenously, and gradually increased to 12 minims which was the maximum dose given in this case. Patient had two chills. Urethral irrigations were begun on the fifth day. Drainage from the epididymis ceased on the third day when the tube was removed. Resolution was prompt and gratifying and all symptoms had completely disappeared at the end of five weeks; no gonococci were found and patient was discharged. Phylacogen was given in this case for fourteen days.

No doubt the phylacogen was the prime factor in clearing up this condition, which is one of the most stubborn we have to contend with.

Case 3.—C. S., aged 26; male; single; cotton mill operator. Patient had gonorrhea four years ago, which was cured. Three months ago contracted fresh case and has been faithfully and well treated but still has a continual discharge. Has had no previous illness. Prostate normal; second glass clear; gonococci in smear.

Diagnosis.—Post-urethritis.

Patient was given through and through irrigations, with deep instillations of silver nitrate. Gonorrhea phylacogen was given once daily for sixteen days, starting with 2 minims intravenously and cautiously increased to prevent reactions as the patient worked every day.

10 minims was the maximum dose given. At the end of four weeks all symptoms had disappeared and no gonococci found. The utricle was injected with 5 minims of ½% silver nitrate.

The phylacogen no doubt aided in clearing up the gonococci.

Case 4.—J. W. L., aged 37; male; married; laborer. Patient had gonorrhea twelve years

ago; no other illness. Was treated several months at that time and thought he was well, although he says he has never felt entirely well and at times has considerable trouble about his water. Says he has not been exposed to a new infection. Two weeks ago after a debauch noticed a little thin discharge, the meatus being stuck together in the morning. Has been getting up once or twice at night for several years to urinate. Has often noticed feeling of discomfort in perineal region. No urethral symptoms, prostate about twice the normal size and very hard. An expressed drop showed gonococci, first urine cloudy with few little fine shreds, second urine also contained pus.

Diagnosis.—Chronic prostatitis and chronic cystitis.

Prostate was massaged, intravesicle irrigations with potassium permanganate were given. Gonorrhea phylacogen was given daily in small doses to prevent reaction, as the patient had to continue his work. Started with 2 minims intravenously, and gradually increased to 15 minims, which was the maximum dose. This man was under treatment for five weeks and is apparently a perfect cure.

It has been impossible to obtain results in chronic cases of this character of so long standing, and I am sure phylacogen has greatly reduced the time of treatment as well as added to the effectiveness.

Case 5.—A. B., aged 28; male; single, salesman. Patient had an acute attack of gonorrhea six weeks before coming under my care and had treated himself with patent remedies. About three weeks ago developed severe pain in right knee; had several chills and considerable fever. The left knee began to swell in about four days, and a few days later the right elbow. He was treated in the usual way by his family physician without improvement. On September 11 he was brought to our private hospital on a stretcher. Had been taking 2 grains of morphine daily hypodermatically.

Temperature 102, pulse 124, respiration 26. Both knees and right elbow greatly swollen and extremely painful.

Both knees were drawn and there was inability to straighten them; unable to move right arm; some fluctuation in knee joints, which appeared red and angry. Slight urethral discharge; enlarged prostate.

Diagnosis.—Gonorrheal arthritis.

No other treatment was given except gonorrhea phylacogen; no local applications or poultices were applied. The swelling began to subside on the fourth day; on the seventh day he was able to get about his room on crutches and go to the toilet. He was never given more than 60 minims at a dose, and after the tenth day was given one dose a day. On the twelfth day he walked two city blocks with the aid of one crutch, and on the fourteenth day he left for his home at Kernersville, N. C.

The pain virtually ceased by the sixth day. He received no special treatment for the urethritis, but he informed me six weeks after leaving that he had not seen any evidences of it. No examination was made. It is noteworthy that I was able to give this patient larger doses intravenously without getting reactions than any other case I have treated. There is no other agent that I know that would have given such prompt and gratifying results.

The phylacogen was given as follows:

11th, P. M., 5 minims intravenously, no local no systemic reaction.

12th, A. M., 7 minims intravenously, no local no systemic reaction.

12th, P. M., 10 minims intravenously, no local but slight systemic reaction.

13th, A. M., 12 minims intravenously, no local no systemic reaction.

13th, P. M., 20 minims intravenously, no local but severe systemic reaction.

14th, A. M., 20 minims intravenously, no local no systemic reaction.

14th, P. M., 30 minims intravenously, no local no systemic reaction.

15th, A. M., 35 minims intravenously, no local no systemic reaction.

15th, P. M., 40 minims intravenously, no local but severe systemic reaction.

16th, A. M., 40 minims intravenously, no local no systemic reaction.

16th, P. M., 45 minims intravenously, no local no systemic reaction.

17th, A. M., 50 minims intravenously, no local no systemic reaction.

17th, P. M., 60 minims intravenously, no local but slight systemic reaction.

18th, A. M., 60 minims intravenously, no local no systemic reaction.

18th, P. M., 60 minims intravenously, no local no systemic reaction.

Let us now transfer our attention to a very different variety of cases, namely, hay-fever. It is not my object here to indulge in theory, but it might be well to call attention to the fact that the success of mixed infection phylacogen in so many hay-fever cases seems to argue an infectious etiology or at least seems to point to the fact that infection plays a very important

role. The efficiency of this preparation in this condition is indicated by the following case history:

Case 6.—M. B.; aged 28; female; single; trained nurse. Patient has been a continuous sufferer from hay-fever for the past ten years during the pollen season; almost invariably has to give up her work and stay continually in her room, or change climate. Has been suffering from this attack for past two weeks; had to give up a case she was nursing. Has had practically no sleep in a week. Patient suffered from continual sneezing, coryza, shortness of breath, slight elevation of temperature, and headache. Eyes swollen and injected, copious secretion from eyes and nose; respiration 30.

Diagnosis.—Hay-fever.

One-half c.c. mixed infection phylacogen was given intramuscularly on Saturday afternoon. No chill but severe local reaction, slight elevation of temperature. Condition was unchanged on Monday when 1 c.c. of the phylacogen was given, followed by severe local reaction, no chill, temperature 100. Great improvement noticed on Tuesday; patient slept well that night for first time. 1 c.c. given on Wednesday, slight local reaction, no chill or elevation of temperature. All symptoms had disappeared on Thursday, and patient felt as well as ever. Resumed her work on Saturday in the middle of the hay-fever season without the slightest evidences of a return. This seems remarkable, for I have never obtained similar results from any other agent.

Another class of cases which I wish to touch upon is arthritis especially that exceedingly resistant form of the disease known as arthritis deformans. As an example of what may be expected from the administration of rheumatism phylacogen in this condition, I may cite the following:

Case 7.—W. O., aged 38; male; married; weaver. Patient has had arthritis for past eight months in wrists, fingers, hips and ankles. Had been in bed several months though when I saw him he was able to walk about a little, but was suffering considerably; had not walked for ten months. Some elevation of temperature, all joints swollen and tender. There was deformity in the fingers and one wrist, knees enlarged, presenting an "arthritis deformans."

Diagnosis.—Arthritis deformans.

Patient was put to bed, or rather sent to St.

Leo's Hospital. His first dose of rheumatism phylacogen was 10 minims intramuscularly; there was considerable local reaction, but no systemic. The next day he was given 5 minims intravenously, without any reaction. He was treated once a day, the dose being gradually raised until he was taking 30 minims intravenously daily. He received no other treatment except some iodides. He left the hospital on the eleventh day and walked to his home about one-half mile, and was able to return to his work in the mill in about a week. Of course the deformity was not relieved but the pain and inflammatory conditions entirely disappeared, appetite improved and he gained several pounds in weight.

Patient was greatly benefited and able to do his work, which he had not been able to do in a long time.

From the foregoing, I think we are justified in believing that there is considerable therapeutic virtue in the phylacogens. I am pleased to adopt them for use in my practice because I am convinced that I have thereby added to my therapeutic armamentarium an exceedingly hostile foe to the gonococcus and to other infections.

121 South Elm Street.

SIMPLE CYSTS OF THE LIVER—REPORT OF CASE.*

By DAN. L. BORDEN, M. D., Washington, D. C.
Instructor in Surgery and Gynecology, The George Washington University.

Owing to the rarity of this particular pathology of the liver, the case about to be presented is of extreme interest. The infrequency of its occurrence can only be estimated when it is stated that up to the present time but some 90 cases have ever been reported, of which none, so far as the writer has been able to ascertain after a diligent search in the Surgeon General's Library, have occurred in the District of Columbia.

As in cystic disease of other organs, we may find liver cysts varying in size from those too minute to be distinguished with the naked eye to those occupying large areas, large enough to produce pressure symptoms with resulting displacement of surrounding viscera. Simple, nonparasitic or congenital cysts, as they have been termed, may be single, multiple or inter-

locular—the multiple cysts being the most common. Anatomically, they may be found anywhere in the liver substance but statistics bear out the fact that their most frequent location is just under the capsule of Glisson. This is of interest as it might play some part as to their origin. Macroscopically, the cyst wall is composed of varying thick or thin fibrous tissue which may, or may not contain constricting bands. The interior of the wall is smooth, shiny and oftentimes wrinkled.

The microscopical picture presents certain definite glandular structure differing according to the size of the cyst. Thus, the smaller variety are lined with an epithelial membrane composed of columnar cells, the medium large cysts with a cuboidal form, whereas the large cavities owing to the pressure of accumulating fluid contain an incomplete layer of flattened epithelial cells. Of marked interest are the blood vessels which in many cases are considerably dilated with their walls lying right next to the cyst wall. This accounts for the excessive hemorrhage reported in some cases where the vessel has ruptured following the sudden release of pressure as the result of evacuation of the cyst content. Covering the epithelial lining of the cyst and forming its outer layer may be seen a wall, varying in thickness, of nucleated fibrous tissue.

The cystic content is a fluid, clear or slightly brownish in color, containing as a constant ingredient albumen. Other substances such as mucin, cholesterin, epithelial cells, leukocytes and red blood cells may be present in small quantities. Bile or bile pigment has never been demonstrated in true simple cystic fluid.

The surrounding liver substance may be cirrhotic but on the other hand may and nearly always is normal, so far as gross examination is concerned. The gall bladder and bile ducts have been unaffected except in a few instances and in these cases the trouble could not be traced to cystic disease.

The true etiology of cystic liver is still unknown and, as in all unsolved problems, many theories have been advanced in an effort to explain this unusual condition. There appears to be no definite predisposing cause except age and sex. In this respect it may be said that the disease is more common in the female after the thirtieth year of life. As to the primary cause, the following possible solutions have been sub-

*Read before the George Washington Medical Society, November 15, 1913.

mitted:—Congenital developmental defects, dilated bile ducts as a result of obstruction, fusion of vacuoles arising in hepatic cells, cystic degeneration of angiomas of the liver, dilation of connective tissue spaces and lymphatics. Without going into the details for or against the above given possibilities, the most probable cause alone will be described. This theory is set forth by Moschcowitz and seems most reasonable. He found present in his cases of cystic liver certain aberrant well formed intracapsular bile ducts in the parenchyma and capsule of the liver,—their presence being only explained by some congenital malformation. As these ducts do not exist in the normal liver, it is reasonable to suppose that they are the seat of trouble. According to Heister, the liver receives its origin from a diverticulum of the entoderm. Cell proliferation goes on at a rapid rate and this diverticulum bifurcates to form the right and left lobe of the liver. As cell formation continues, the cells begin to cluster around into primary cylinders, later to become the hepatic ducts. In the course of time a series of inosculating cell cords are developed in the meshes of which the connective tissue and blood vessels form. In the event of a failure of these primitive branches of entoderm to proliferate there is formed the aberrant ducts seen in cystic disease. Thus we have present isolated closed cavities which as a result of inflammatory changes or congenital obstruction develop into cysts.

While considering the subject of etiology, there is one fact worthy of mention. It is of interest to note that in cystic disease of the liver we often have associated with it cystic degeneration of the kidneys—this occurring in about nineteen per cent of the cases thus far reported. Such malformations as supernumerary fingers, encephalocele, hair lip, hemicephalus and transposition of the viscera have also been reported in conjunction with cases of cystic degeneration of the liver.

As has been stated the etiology of this disease is obscure and until some definite cause can be proven the theory of Moschcowitz is the most acceptable.

The symptomatology of this condition varies according to the size and location of the cyst or cysts. The majority of cases give no symptoms but those attaining sufficient size may as a result of pressure and displacement of sur-

rounding viscera give rise to varying subjective signs. Thus these cysts have displaced the liver to such an extent that it has interfered with labor. They may of course interfere mechanically with the normal functions of any of the intra-abdominal organs as well as the diaphragm. Pain is quite a constant symptom and may be at the seat of trouble or referred—referred pain being the result of pressure. Perhaps after all the most prominent feature in this disease is a slowly developing tumor over the region of the liver which may or may not be attended with pain. The physical signs are of interest and at the same time may be most deceiving, with a resulting erroneous diagnosis. Examination shows the presence of an epigastric tumor which may or may not be symmetrical. Palpation may reveal fluctuation but owing to the tenseness as a result of intracystic pressure this is often very doubtful and the mass feels exactly like liver substance. The liver can usually be felt displaced or enlarged and in the event of multiple cysts a nodular feeling will result. Other than those already given there are no general physical signs symbolic of cystic disease.

Owing to its rarity and lack of symptoms, this disease is seldom diagnosed until the surgeon has disclosed its nature or more generally the pathologist meets it as a surprise upon the autopsy table. As in other pathological conditions of this region, many possibilities come to mind. Thus we have to consider a possible dilated gall bladder, cyst of the pancreas, hydatid cyst, specific gummata, hydronephrosis, malignancy, etc. A positive diagnosis can only be made by aspiration or exploratory laparotomy either of which will reveal the true state of affairs. It is interesting to note in reviewing the literature how often this condition is met as a complete surprise—a perfectly natural result when we remember how seldom it is encountered.

The prognosis is doubtful, depending upon the number, location and size of the cysts. Following operative procedure most of the reported cases have recovered although death has resulted from excessive hemorrhage as a result of a ruptured blood vessel within the cyst wall following the release of tension. Although infection in these cases has been comparatively rare, it has been the cause of a few deaths.

For relief of cystic disease the treatment is

surgical. This may include aspiration, incision and drainage, enucleation of the cyst wall and a possible resection of the liver. Kean has reported a cure resulting from a partial liver resection for multiple cysts of the liver. Of the methods mentioned the operation of choice would be complete enucleation but as a result of size and danger of uncontrollable hemorrhage, this is too often impossible—however, in the case of small cysts it has been done. Incision and drainage is perhaps the most common and safest method of procedure and it does yield results although there will be a drainage for the course of a month or so, at the end of which time the fistula closes up. To this end an incision having been made through the abdominal wall over the most prominent part of the tumor the cyst wall is opened and its contents evacuated. When possible, the cyst wall is then sutured at the point of rupture to the parietal peritoneum and a tube drain inserted. The fluid having been removed, the cyst naturally collapses and in course of time adheres to itself. This may be assisted by the use of an abdominal bandage to exert external pressure. Some surgeons recommend a curettement of the interior of the cyst but great care should be exercised and even then there is considerable risk of a possible erosion or rupture of an injured blood vessel. Packing has been resorted to and may be beneficial in certain cases. The question of injecting or irrigating certain chemicals to promote irritation and subsequent apposition of the cyst walls has not as yet been tried.

The report of my case is as follows:

M. S., age fifty, female, colored, married, occupation, housewife, residence, North Carolina.

Family History.—Mother and father dead; age at death and cause unknown. One brother and one sister living and in good health. Two sisters dead, cause and age not known. No family history of tuberculosis or carcinoma.

Previous History.—During childhood had measles and whooping-cough. Since childhood general state of health has been good except during the winter of 1902, at which time she had chills and fever. Menses began at age of fourteen, have been regular and without pain. Married at age of fifteen and has had thirteen normal pregnancies, the last being a twin pregnancy. Of her children three daughters are dead, one died at age of twenty-five following

delivery, another at the age of eighteen from pneumonia and the third died in infancy, cause unknown. Her other children so far as the patient knows are well and healthy. Patient does not use alcohol or drugs in any form. Has always lived in North Carolina until one week before operation.

Present Illness.—Began about four months previous to time of operation with a swelling of the upper abdomen. At night upon retiring there would be slight pain in the lower right quadrant. As the tumor increased in size the pressure upward became noticeable with resulting embarrassed respiration. This, however, was not marked. Aside from this there were no other symptoms whatever. No chills, sweats, fever or nausea.

Examination showed the presence of a bulging mass in the epigastric region extending transversely across the abdomen just below the costal margin. To the touch, this tumor was tense and doubtful fluctuation was at times obtained. The liver was displaced downward and extended across the abdomen two inches below the umbilicus. The gall bladder could be palpated below and to the right of the umbilicus. The right lobe was nodulated. There was evidence of some peritoneal fluid in the flanks. Dullness extended from a line passing through the right nipple above to two inches below the umbilicus. All other physical signs were negative except the stomach which was displaced downward. The diagnosis being in doubt, an exploratory laparotomy was decided upon.

Operation, June 25, 1913. Incision made one inch to right of rectus just below the last rib and extending downward for six inches. A large cyst extending between the diaphragm and the top of the liver was disclosed. The right lobe contained upon its anterior surface a few solitary cysts which accounted for the nodular feeling. The entire liver was displaced downward. The liver substance itself and gall bladder appeared perfectly normal. The left kidney was normal, the right was slightly enlarged and displaced downward. The spleen and pelvic organs were normal.

The cyst was opened and 2,442 c. c. of fluid was caught. About one-half this amount escaped so that the cyst contained about 3,663 c. c. of clear slightly yellow fluid. The small cysts on the anterior surface of right lobe were opened. Upon the evacuation of the cyst the

liver resumed its normal position. The cyst wall was then sutured to the parietal peritoneum and a rubber drain inserted. An abdominal binder was applied to exert pressure upward and hold the liver in its correct position. The cystic fluid as reported by Major F. F. Russell was as follows:

"Cystic fluid:

Specific gravity, 1.009.
Reaction—alkaline.
No sugar.
No succinic acid.
Sodium chloride, .7%.
Considerable albumen.
No hooklets.

According to Osler, practically all of the points diagnostic of echinococcus cyst were absent."

The patient made an uneventful recovery, the wound healing by first intention. The drainage continued for five weeks and then stopped. At the present time the patient is well, the liver has resumed its normal position and there has been no evidence of a recurrence.

The Rochambeau.

PRACTICAL HINTS FOR LOCAL HEALTH OFFICERS IN RELATION TO PURE FOOD AND DAIRY SUPPLIES.*

By R. L. ROBERTSON, M. D., Charlottesville, Va.
Health Officer of Charlottesville.

No problem before the health officers of today is more important than pure food and no food is more important than milk. Milk, like an egg, is very, very good, or else it is very, very bad! But, unlike the egg, when it is bad, it gives no warning, and is therefore far more dangerous.

Health officers, therefore, must take upon themselves the task of seeing to it that their milk supply is unqualifiedly good; they will meet objections and obstacles that are at first discouraging and seem almost insurmountable, but with patience, and by working on a system with the dairymen, they will soon be repaid by gratifying results in the great improvement they will be able to accomplish.

In formulating dairy rules, a very important fact to be borne in mind is that each requirement should be based on absolute necessity. Do not make useless and arbitrary laws. After they are made, take time and care to explain

the reason for each rule to the dairymen. Let each one feel that the law is only brought into play for the *willful violator*, but when it is necessary to resort to it, it will be carried out to the letter.

The first and most important step to be taken by health officers, when they have once determined to see that their milk supply is first-class, is to get in touch with the State Dairy and Food Commissioners: get a bird's eye view of their work, procure their assistance, and co-operate with them, especially in framing rules and regulations for the government of the dairies. See that they are framed in line with the general work of the State Commissioners and the United States Department of Agriculture. To have the best conditions possible in our dairies, this co-operation is essential, and by it the dairymen are benefited in every possible way at a minimum expense.

The educational features alone would make it worth while to the dairymen; it cultivates pride and rivalry in the business and each one strives to have his milk the best on the market, while each one sees and realizes that any dairyman who lags, and does not make an honest effort to keep abreast of the times, had better get out of the business and the sooner the better.

The public demands pure food for the babies and the little ones, and we are put in authority and paid to see that they get it. So, when a dairyman through sloth, greed or dishonesty, does not comply with the requirements of the law, he must be made to feel that he is arraying himself against his city, the State, and the United States Government, and that his chances for success are gone. Whereas, on the other hand, if he makes an honest effort to do what is right, he finds the same forces ready and willing to aid him in every legitimate way to improve his business; he then becomes one of us, and works shoulder to shoulder with the health officer, willingly, and not under the compulsion of the law.

To make plain the importance of co-operation with the State authorities, let me describe briefly my experience in having all the dairy herds that are supplying milk to the city of Charlottesville tuberculin-tested. Having made up my mind to the necessity of having the test made, I discussed the matter thoroughly with Mr. Rowe, Deputy State Pure Food and Dairy Commissioner, and requested his help in the

*Read before the fourth annual meeting of the Virginia Public Health Association, at Lynchburg, October 23, 1913.

matter. He kindly visited our dairies, explained to each dairyman the importance of the test, urged each one to have it made, and stated just what the State would do if his offer was accepted, viz., that the tests would be done at the expense of the State and United States Government; that in case of re-acting cows, the State would pay 60 per cent. of the appraised value, this appraisal to be agreed upon by the owner and the State official. After spending much time and trouble in trying to bring them to the point of making applications to have their herds tested, without success, he turned the matter over to me. I went to work in dead earnest on the foundation he had laid. Some of the dairymen were still doubtful of the necessity of any test; they knew their cows were perfectly healthy and were afraid of the test itself. Every reasonable and unreasonable objection that could be imagined was made, and not one of the dairymen would take the initiative and sign the application blank. Fortunately, just at this time, a cow that had recently been in four different dairies was slaughtered for beef at the abattoir. She was frightfully diseased with tuberculosis, and of course had to be condemned. This cow had shown no symptoms of disease; she had gradually fallen off in her milk and was taking on fat, and for this reason alone, she had been beefed. I called a joint meeting of the dairymen to my office and discussed the whole situation with them, and told them that the time had come when the test was an absolute necessity; still they would not consent to sign the application.

I then called a meeting of the Board of Health and, upon my urgent request, the board agreed to change rules governing our dairies so that Rule No. 1 read as follows:

"Every cow shall be kept clean, and every cow shall be tuberculin-tested, under State or Federal authority, and found free of tuberculosis, before a permit to sell dairy products can be issued to her owner, and any violation of this rule shall operate to cancel the owner's permit."

A copy of the new rule was forwarded to each dairyman, and a reasonable time given before the new requirements were to be put in effect. This rule applied not only to the large dairies, but to every one owning one or two cows in or around the city; not one drop of milk could be sold in the city, unless the cow from which it came was tested.

The bomb had been exploded, and I had no pleasant task for a while. Some of the dairy-

men thought I had ruined them, but the more progressive soon filed their application to the State authorities to have the tests made, and in a short time all the others fell in line. The State took up the work at once and carried it to completion. So, to-day, about twenty-two hundred cows in and around Charlottesville have been tested. These tests revealed the fact that a fraction over two per cent. had tuberculosis. All of those that reacted were slaughtered, and the post-mortem examinations in every case confirmed the diagnosis to the satisfaction of the owners, as well as the United States officials conducting the examinations.

Today all of our dairymen and cattlemen realize the danger from tuberculosis, and are striving to help me exterminate the disease from this section.

There is no sale for untested cattle to any of our dairymen.

To save expense and time, I have succeeded in having one of our local veterinary surgeons appointed by the State to do this work for the small owners. Of course he charges for his work.

The only expense the city has had is a few dollars paid for the tags that mark the tested cows, while the dairymen have gotten sixty per cent. of the appraised value for each reacting cow, and have gotten rid of a dangerous contagious disease. One dairyman who had a herd of thirty-three, had twenty-two reactions; today has a herd of twenty-eight healthy cows, and is doing better than before he was shaken up and started in good earnest to bring his dairy up to date. The State and the United States Government have borne the whole expense, and have done the work. The education of the dairymen, by talking with the deputy commissioner who appraised the herds, and the United States veterinary surgeons who made the tests upon the request of our State officials, and who stayed with the dairymen while the tests were being made, has been of the greatest possible help to all concerned.

While this agitation has been going on, an entirely new condition of dairy technique has taken place. Ventilation, light, proper air space, cement floors, and cleanliness have been secured in all of our larger dairies; several new barns have been erected on up-to-date plans, and, without exception, every dairy has been wonderfully improved. Sanitary milk-rooms, sanitary milk pails, more care and attention given to aerating, cooling and bottling, and bet-

ter facilities for sterilizing bottles, have all followed in easy sequence—the dairyman having been convinced that the Health Department is not trying to annoy and burden them, but is honestly and openly determined to help them bring their dairies up to the required standard. And when they realized the fact that any dairyman who knowingly and willfully sold unclean or contaminated milk was but little better than a murderer, they cheerfully and honestly went to work to furnish the best milk possible.

Through the kindness of Dr. Harry Marshall, of the University of Virginia, we are able to get bacteriological reports from time to time on the milk from the different dairies. These reports are of the greatest importance practically, for they point out at once the dairies that are not up-to-date in the method of handling their milk. These reports have proved to my satisfaction that, though a dairy may be equipped with all modern appliances, with sanitary barns and milk-room, and with a healthy herd of cows, still it may send out an inferior quality of milk, because the method of handling is faulty.

I have good reason to hope that in the near future we will have an up-to-date Central Milk Depot, from which all of our milk will be distributed. I am satisfied that such a depot will prove of the greatest good to all concerned, and help to put our milk supply on the highest plane possible.

Another great problem for health officers to solve is insuring a pure meat supply to the public. Under this head I can point to the great benefits that have come to our city through a perfectly sanitary and up-to-date abattoir.

I find that such an abattoir answers the whole question. The troublesome nuisances of small slaughter-houses around the city have been abolished; the healthy condition of all cattle slaughtered for food is guaranteed, while the meat is cooled, preserved, and delivered to the customers in the very best sanitary condition. If health officers have no abattoir in their cities, the best practical hint I can give them is to get to work and get one.

In protecting the public from danger in the miscellaneous food supplies of our stores, hotels and restaurants, I cannot refrain from acknowledging that the greatest good has come in like manner by honest co-operation with the State authorities. My in-

spector works in strict accord with the State Inspector, and each nuisance or violation of the sanitary requirements is handled in such a manner as to let the offending party see and feel, that he is not only fighting against his own town authorities, but is making himself liable to prosecution by the State. No work that the health officer has to perform requires more judgment and tact than this, and I believe that every health officer who has devoted much attention to this problem feels the absolute necessity for having his work backed up and supported by the strong arm of the State. Local authorities, especially in small towns, are often too lenient or too indifferent to the seriousness of the case to give the support that is essential. Of course, voluntary co-operation of all concerned is the end in view, and should never be lost sight of, for but little can be done towards better conditions where there is bad feeling, and the health department is regarded as a nagging nuisance. The idea is to educate, explaining the reason for each requirement, and urge co-operation. When conditions improve, have patience and work on, but when they show no desire or intention of doing the right thing, then turn them over to the police justice and the State authorities, and results will follow immediately.

As a subject related to pure food, I wish, in conclusion, to call attention to the importance of keeping a watchful eye on all the sources of the water supply. I cannot estimate the good that has resulted from the reports received from the State laboratory in Richmond, on specimens of water that I have sent there, from time to time, to be examined.

I have the city water examined frequently, and every well or spring in the suburbs, on the first suspicion of sickness being caused by its use. These examinations have been necessary to protect the city from its surroundings. In the last year three independent outbreaks of typhoid fever in our suburbs, and outside my jurisdiction, have been traced through the careful work of Dr. Meade Ferguson, State Bacteriologist, to three polluted wells, and by this knowledge the disease was controlled. Hence, to sum up, I would suggest that in order to obtain the best results in our most important and responsible work, an honest co-operation with the State Health Department and the Pure Food and Dairy Commissioner is the first duty of local health officers.

Editorial.

Repeal of Physicians' Special License Tax Bill.

After unsuccessful efforts before the Legislature of Virginia for the past fourteen years, the profession of this State may now congratulate itself that the law which required of them the unjust and iniquitous special license tax has at last been repealed.

As announced in our last issue, the repeal bill was passed in the Senate by the overwhelming vote of 30 to 3, while in the House of Delegates the vote was 68 to 19—(not 60 to 14, as was previously stated through error). The bill then went to the Governor, whose attitude to the measure at first threatened to undo all that the Legislature had done, but who finally permitted the bill to become law without his signature, evidently not being opposed to it sufficiently to call forth his veto.

The repeal of this special license tax does not go into effect until next year, 1915. In the meantime, a special commission has been appointed to suggest a revision or adjustment of the whole tax system of the State, and the Legislature meets again in special session within the next twelve months to consider the question of taxation. Now that the special tax on physicians has been repealed by such a large vote, it seems scarcely probable that it will again be put on medical practitioners, as such a bill would require a majority vote of each branch of the Legislature—a thing that seems unlikely. However, it may be advisable not to let legislators lose sight of the merits of our bill at this time, so that, should the imposition of such a tax be further considered, as we have heard suggested, our friends in the Legislature will not be taken unaware.

We were informed by Dr. Geo. A. Stover, Chairman of the Legislative Committee of the Medical Society of Virginia, that he would present his first report to the physicians of Virginia through the columns of this journal, without awaiting the annual meeting of the State Society. This report not having been received, as we had hoped, up to the time of going to press, we count on being able to present it to our readers in our next issue. Consequently, we will refrain from anticipating what Dr.

Stover may have to say by further remarks of our own.

Virginia's Insane and Feeble-Minded—Progressive Legislation.

Some constructive legislation regarding the insane and the feeble-minded was enacted by the General Assembly of Virginia at its recent session. One of the new laws enacted provides for the *voluntary admission* to State hospitals of persons in the early stages of mental disorder or those on the border-line of insanity. Under this law a citizen of the State may, without undergoing the usual and often objectionable legal process of a commitment by a justice and two physicians, enter a State hospital just as he would a general hospital, and receive needed special treatment, at a nominal cost.

Another new law has for its object the *immediate admission* into a State hospital of acutely or violently insane persons who are in urgent need of hospital care and treatment. Such cases may be admitted, and retained temporarily, on the certificate of two physicians, pending a regular commitment. The objects of this law are to provide needed hospital care and special treatment at the earliest possible moment, and to obviate confining such persons in jail. The next progressive step will be to have *all* insane persons placed under the supervision of boards of health, while their mental condition is being investigated or while waiting to be transferred to a hospital, instead of placing them in jail under penal control, as is now sometimes done. Of course, the laws providing for voluntary and emergency commitment of the insane are well safe-guarded so as to throw ample protection about both the patient and the hospital.

Authority was given the hospital board to establish at the Central State Hospital, near Petersburg, a colony for the *colored feeble-minded*. The bill providing for the establishment of such a colony did not carry an appropriation; consequently, no building will yet be constructed. Plans, cost of construction, and operation of the colony will be submitted to the next Legislature, when sufficient appropriation will probably be provided. The Legislature of 1912 established at the State Colony for Epileptics, near Lynchburg, a similar colony for the white feeble-minded, which has been opened for the reception of female patients between the ages of twelve and forty-five years.

Another important measure was one giving the State Board of Charities and Corrections authority to employ experts to aid the Board in investigations of feeble-mindedness and mental degeneracy in the State and report to the next Legislature the extent of mental degeneracy, the causes, and a comprehensive and practical scheme for the segregation, care and training of such defectives and, as far as possible, the prevention of their procreation.

These laws and others passed in recent years which established the State Colony for white epileptics and feeble-minded, departments at the Southwestern and the Central State Hospitals for the safe and separate custody of the criminal insane, and the examination and observation by psychiatrists of persons charged with crime and suspected of being insane, thereby putting expert testimony on a higher and more scientific plane, etc., indicate a progressive, scientific and humane spirit in dealing with the insane, the feeble-minded and epileptics of the State. Such legislation as the foregoing reflects the ideas of leading alienists.

In the matter of maintenance for the four State hospitals for the insane and the Colony for epileptics, for the next two years, the Legislature appropriated the sum of \$1,147,660; and for additional accommodations for patients and for sundry improvements, insurance, etc., the sum of \$142,525; total, \$1,290,185. There are under care in the five institutions 4,853 patients. No insane are confined in jails and almshouses. This is a most creditable record for the State. There are, however, hundreds of feeble-minded and epileptics for whom provision has not been made by the State. W. F. D.

Virginia's Vital Statistics Law

Has been so amended as to correct a few defects shown by experience since it became effective nearly two years ago. When this amendment goes into effect, Dr. W. A. Plecker, who has been practically in charge of this work, with the title of assistant registrar, is to become registrar of vital statistics, under the general control of the Board.

The other amendment provides that where no justice of the peace is available for designation as local registrar, the State registrar shall have the privilege of appointing some other suitable person for the work. This was done to enable the Board to locate registrars in every locality, so that no person will have to make a

long journey to procure a burial permit or to file a birth certificate.

The Virginia Public Health Association,

Of which Dr. Mosby G. Perrow, health officer of Lynchburg, is president, and Dr. Lucien Lofton, of Emporia, secretary-treasurer, will hold its next regular meeting at the University of Virginia, April 23rd and 24th. This is the first time the Association has not held its meeting during the time of the sessions of the Medical Society of Virginia. It promises, however, to be most interesting, as the speakers will include, among others, Dr. Carl Alsberg, Chief of the U. S. Bureau of Chemistry; Dr. L. O. Howard, of the Bureau of Entomology; Dr. Wm. C. Woodward, president of the American Public Health Association; Dr. Harvey W. Wiley, Dr. J. W. H. Pollard, of Washington & Lee University, and Dr. Stephen Watts, of the University.

Internships Won Through Competitive Examination by U. Va. Students.

At the recent competitive examinations held in New York City, for the purpose of securing internes for the various New York City hospitals, five University of Virginia students received the following appointments: Edwin McMorries, Jr., Meridian, Miss., Roosevelt Hospital; Minor Lile, University, and D. H. Witt, Charlottesville, New York Hospital; H. F. Jackson, Selma, Ala., St. Luke's Hospital, and I. B. Ridgway Jackson, Miss., Hudson Street Hospital.

The South Piedmont (Va.) Medical Society

Will hold its next semi-annual meeting in Lynchburg, April 21, Dr. James Morrison, of that city, presiding. It is predicted that this will be one of the most interesting meetings in the history of the Society. Dr. George A. Stover, of South Boston, is secretary-treasurer.

Dr. Benton F. Tatum, *

Formerly of Stuart, Va., will move to Schoolfield, Pittsylvania County, Va., about April 1st, to practice his profession.

Hookworm Scarce in Northampton County.

In the recent inspection of school children of Northampton County, Virginia, for hookworm disease, Dr. W. A. Brumfield, inspector of the State Board of Health, found only 36 infections in 1,682 children examined, or about 2 per cent. This is the lowest percentage of infection found in any Virginia county.

Dr. R. Tunstall Taylor,

Baltimore, Md., was a recent visitor to this city, and read a paper on Bone Grafting and Transplantation before the Richmond Academy of Medicine and Surgery, March 10th.

A Woman's Number.

The *Medical Review of Reviews* announces that its May number will be known as "Woman's Number," the entire issue being given over to articles by women, as a tribute to their earnestness, enthusiasm, modesty, energy, perseverance, and scientific acumen.

Dr. C. Mason Smith,

Fredericksburg, Va., has successfully passed the examination for appointment as first lieutenant of the Medical Reserve Corps of the U. S. Army.

Dr. Estill L. Caudill,

Recently connected with the staff of St. Elizabeth's Hospital, Richmond, has located at Troutdale, Grayson County, Va.

Dr. W. F. Porter

Has moved from Mart, Va., to Bardstown, Ky.

Radium Monopoly Feared.

The report of the U. S. Senate Mines Committee declares that to prevent a radium monopoly, prompt legislative action is necessary, and recommends that the Walsh bill for government control of radium be passed at once.

Dr. C. B. McNairy,

Lenoir, N. C., has been elected superintendent of the N. C. State School for Feeble-minded, to succeed Dr. Ira M. Hardy.

State Bacteriologist.

State Health Commissioner Williams has decided not to announce a successor for the position of State Bacteriologist, of the State Board of Health, until after the meeting of the Board in July. Dr. Ferguson, who has held the position for 6 years, will leave for his new duties the middle of April, after which the present assistant in this department will have charge of the work until July.

The National Institute of Social Sciences,

In awarding the ten medals which it gives annually to scientists, bestowed three upon New Orleans doctors—Drs. C. C. Bass, Charles W. Duval, and Abraham L. Metz.

The Report of the Medical Examining Board of Virginia,

Which is now in type awaiting publication, unfortunately has to be held over until our next issue, owing to lack of space because of the publication in this number of our annual Index.

Vital Statistics in New York City for 1913.

The number of deaths reported in New York City for 1913 was 73,902, or a rate of 13.76 per 1,000, against a rate of 14.11 for the previous year. The number of births reported in that city for 1913 was 135,134, or a rate of 25.15 as opposed to a rate of 26.22 for 1912. This is the lowest birth rate recorded there since 1903.

The Association of American Medical Colleges,

At its meeting in Chicago, the last of February, elected Dr. Isadore Dyer, of Tulane University, New Orleans, president. Dr. Fred C. Zappe, of Chicago, was re-elected secretary-treasurer.

The United States Civil Service Commission,

Washington, D. C., announces an open competitive examination, April 8, 1914, for both men and women, for medical interne for Government Hospital for Insane, Washington, and similar positions as they may occur. The above hospital allows \$900 per annum and maintenance, with a chance for advancement after the first year, to those whose services are satisfactory. Applicants must be unmarried and 20 years or over on date of examination. Senior students of reputable medical colleges will be admitted to the examination, but their names will not be entered upon the eligible register until they have furnished proof of actual graduation from such colleges.

Examinations will be held simultaneously in various places to be hereafter named according to applications received.

Dr. J. W. Babcock,

Who has been superintendent of the South Carolina State Hospital for Insane for the past

twenty-five years, has tendered his resignation, to be effective as soon as his position can be filled.

Forty Years of Continuous Publication.

It may be a matter of interest to our readers to note that with the issuance of the present number, the Semi-Monthly completes its fortieth year of continuous publication. Begun April, 1874, as the *Virginia Medical Monthly*, the journal was continued as such until 1896, when it was changed by its founder and editor, Dr. Landon B. Edwards, to a Semi-Monthly.

Smallpox in Baltimore.

From January 15 to March 6, 1914, it was reported that 147 cases of smallpox had been notified in Baltimore.

Pennsylvania Refuses Charter to Chiropractors.

We note from the *Pennsylvania Medical Journal* that the Supreme Court of Pennsylvania recently refused a charter to an organization known as the Chiropractors' Association of Pennsylvania, on the ground that the applicant had no legal status under the medical practice act.

Dr. Powhatan S. Schenck,

Norfolk, Va., has resigned as chairman of the Norfolk City Democratic Executive Committee.

Smallpox in Chicago.

Of the 41 cases of smallpox in Chicago, from the first day of the current year to March 7th, 36 had never been vaccinated, and the other five had only doubtful scars as the result of childhood vaccinations.

Mr. A. H. Straus,

Bacteriologist of the Richmond Board of Health, who has been on a two months' leave of absence in Detroit, on national government duty, has returned to his work in this city.

New Hospital for Baltimore.

Work has been commenced on the new building for the South Baltimore Eye, Ear, Nose and Throat Hospital, which is to have about fifty beds and cost about \$50,000.

Bichloride Tablets.

In addition to the regulations recently made by the New York City Board of Health with regard to the appearance of bichloride of mercury tablets, it was still further adopted by the Board, that on and after March 1st, bichloride tablets may be sold at retail only on prescription of a physician.

The Graduate Nurses' Association of Virginia,

Recognizing that only women of the highest type should be allowed to fill the responsible position of the visiting school nurse, and believing that this type is best represented by the registered nurse, has petitioned the Virginia State Boards of Education and Health to urge the various Boards of Health and Education in the cities and towns of this State to employ only registered nurses for this position.

Use of the Virginia State Library By the People of the State.

With an idea of making the Library as widely useful as possible to the people of the whole State, the Library Board, at a meeting November 21, 1913, resolved that the privilege of borrowing should be granted every responsible person in the State, over eighteen years of age, whose responsibility may be certified by any member of the General Assembly of Virginia, any State officer, any judge, the mayor of any city or town, or any division superintendent of schools. The applicant, of course, is expected to comply with the rules of the Library. Where not called for in person the books will be sent by parcel post, and as it would be impossible for the borrower to know the exact amount of postage required, it has been thought best to have the borrower in each case send 10 cents in stamps, with the understanding that if the necessary postage does not equal that amount, the excess will be returned, and that if it is greater, the borrower will, on notification, send additional stamps.

With this new ruling, there seems no reason why the Virginia State Library may not be the library for the whole State just as any free public library of a city is the library for all the people of that city.

For Sale—At Gladstone, New Jersey, a physician's house of ten rooms (including office), with improvements and good barn. Splendid location. Address, G. Farrow, 391½ Clark St., Newark, New Jersey.—(Adv.)

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(APRIL, 1913—MARCH 1914, INCLUSIVE)

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